

***United States Court of Appeals
for the Second Circuit***



APPENDIX

77-6049

UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT
Docket No. 77-6049

County of Suffolk, County of Nassau,
Town of Islip, Town of Hempstead,
Town of North Hempstead, Town of
Oyster Bay, Town of Huntington,
and the Board of Trustees of the
Town of Huntington and Concerned
Citizens of Montauk, Inc.,

Appellees,

- against -

Secretary of the Interior, et al.,

Appellants,

National Ocean Industries Association,
et al.,

Intervenor-Appellants.

The Natural Resources Defense Council, Inc.,

Appellees,

- against -

Thomas S. Kleppe, Secretary of the Interior,

Appellant,

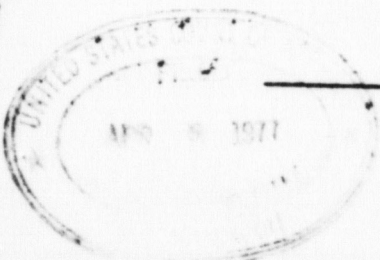
National Ocean Industries Association, et al.,

Intervenor-Appellants.

On Appeal from the United States District
Court for the Eastern District of New York

JOINT APPENDIX
(Volume VI 3088 - 3650)

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PAGINATION AS IN ORIGINAL COPY

TABLE OF CONTENTS

	Page
Docket Entries	1
Judgment of the Clerk of the United States District Court for the Eastern District of York dated and entered February 17, 1977 ...	17
District Court Final Memorandum and Order dated and entered in the United States Dis- trict Court for the Eastern District of New York on February 17, 1977	18
District Court Memorandum and Order dated and entered in the United States District Court for the Eastern District of New York on August 13, 1976	156
Court of Appeals Order dated August 16, 1976 ..	355
Supreme Court Order dated August 19, 1976 \.....	357
Court of Appeals Order dated October 14, 1976 .	364

TESTIMONY PRELIMINARY INJUNCTION HEARING

Witnesses:

Jerome H. Milgram

Direct	366
Cross	394
Redirect	398
Recross	402

Joseph W. Rachlin

Direct	406
--------------	-----

John M. Teal

Direct 430

James K. Mitchell

Direct 457

Cross 575

Redirect 641

John L. McHugh

Direct 462

Cross 676

Stephen F. Moore

Direct 727

Cross 767

Anita R. Freudenthal

Direct 781

Cross 800

Jan C. Prager

Direct 808

Cross 814

Lloyd C. Atkinson

Direct 820

Cross 877

Elwood R. Jarmer

Direct 882

Cross 891

Thomas A. Thomas

Cross 909

Daniel Newlon

Direct 613

Cross 953

George L. Donkin

Direct 943

Cross 945

Redirect 970

Carl H. Oppenheimer

Direct 978

Cross 987

David Hoult

Cross 1018

Alfred E. Smalley

Direct 1022

Cross 1027

	Page
Eugene H. Luntz	
Direct	1033
Cross	1034
William P. Wenstrom	
Direct	1060
Cross	1090
Redirect	1106
Louis Pugliaresi	
Direct	1111
Robert F. Evans	
Direct	1124
Cross	1139
Closing Arguments	1148

**PERMANENT INJUNCTION
HEARING**

Witnesses:

James K. Mitchell

Direct	1176
Cross	1191
Redirect	1280

Elwood R. Jarmer

Direct	1211
Cross	1232
Redirect	1262

Fred Coldren

Direct 1266

Guy F. Muziani

Direct 1286

Cross 1306

Thomas A. Thomas

Direct 1316

DeWitt Davies

Direct 1328

Cross 1396

Redirect 1428

Recross 1431

Robert P. Corman

Direct 1445

Cross 1461

Christopher T. Rand

Direct 1472

Cross 1551

Redirect 1567

H. Theodore Heintz

Direct 1572

Cross 1585

Redirect 1614

James Balsley

Direct	1615
Cross	1618

Judith Gresham

Direct	1641
Cross	1651
Redirect	1692

David Hoult

Direct	1702
Cross	1708

Franklin Brunjes

Direct	1720
Cross	1761
Redirect	1827

Osborn Elliott

Direct	1740
Redirect	1760

George L. Donkin

Direct	1833
Cross	1862R

Robert William Bybee

Direct 1898

Cross 1918

Court Colloquy

Transcript of February 14, 1977 1933

DEPOSITIONS

Witnesses:

Frank Basile 1938

Kent Frizzell 1972

Karen Elliott House 2071

Royston C. Hughes 2078

Russell W. Peterson 2120

INDEX

Affidavit of George L. Turcott, sworn to the 10th
day of April, 1975 2148Affidavit of Royston C. Hughes, sworn to the 13th
day of October, 1976 2163Affidavit of Royston C. Hughes, sworn to the 16th
day of January, 1976 2197Affidavit of Stanley B. Doremus, sworn to the 3rd
day of August, 1976 2533Affidavit of Allan B. Powers, sworn to the 3rd day
of August, 1976 2538Final Environmental Statement - Proposed increase
in oil and gas leasing on the Outer Continental
Shelf (1975) 2557

	Page
Technical Paper Number 1, December, 1975	2606
Govern exploration of the OCS - Office of OCS Program Coordination, March 10, 1975	2623
Comments on paper - "Alternative Government Exploration Programs"	2649
Position Paper dated June 20, 1975 on separation of decisions to explore and to develop OCS areas	2655
Letter dated November 3, 1975 regarding cancella- tion clause in the Outer Continental Shelf lease	2670
Letter dated October 31, 1975 on the authority to terminate OCS oil and gas leases after the exploratory phase	2672
Memorandum dated May 16, 1975 relating to tract selection guidelines for the proposed Mid- Atlantic OCS sale no. 40	2679
Public Hearing Testimony of Steven Levy	2689
Public Hearing Testimony of Charles Worthington	2697
Public Hearing Testimony of Joseph F. Bradway, Jr.	2710
Statement of the Gloucester County Development Council by John Crandall	2717
BLM News Release dated August 25, 1976	2721
Oil and Gas Lease for sale no. 40	2723
List of Purchasers at OCS sale no. 40	2733
Statement Before California Assembly Subcommittee on Energy, October 18, 1976	2763
Alternatives for the Coast (1976)	2776
Defendants' Exhibit 5C, prepared by Franklin Brunjes, showing various routes for trans- portation of sale no. 40 oil	2812
Public Hearing Testimony of Elwood Jarmer	2813

Factbook - New England River Basins Commission, RALI Project, selected pages	2824
Interim Land Use and Density Guidelines for the Coastal Area of New Jersey	2938
Department of Interior News Release dated June 17, 1976, relating to the Mid-Atlantic OCS decision	2952
Federal Trade Commission letter dated March 8, 1976 to the Manager, New York OCS Office ...	2953
Affidavit of Robert Engler	2957
Affidavit of Fred Dubin	2967
Letter with enclosures to Mr. Like, dated February 10, 1976, from J. R. Schubel	2974
Critique by Christopher T. Rand, dated September, 1975	2979
Letter of Irving Like to BLM New York OCS Office forwarding material, dated February 11, 1976	3001
Interim Report titled "Coastal Effects of Offshore Energy Development", dated March 16, 1976, United States Congress, Office of Technology Assessment, pp. 13-20, 30	3002
Letter to the Hon. William F. Hyland from Robert P. Corman, dated December 16, 1976 ...	3012
Letter dated January 5, 1977 to Mr. Robert P. Corman from Roger M. Schwartz	3013
Public Hearing Testimony of Freeholder Daryl F. Todd, dated January 28, 1976	3014
Response of Ocean County Board of Chosen Free- holders to Draft EIS for sale no. 40, dated January 29, 1976	3022
Statement of Cape May County Board of Chosen Freeholders on Draft EIS for sale no. 40 ...	3028

	Page
Resolution of Cape May Planning Board (February, 1976)	3034
Statement of the Cape May Planning Board, dated January 27, 1976 on sale no. 40	3035
Exhibits prepared by George L. Donkin	3046
Effects of Offshore Oil and Natural Gas Development on the Coastal Zone, Ad Hoc Select Committee on the Outer Continental Shelf, House of Representa- tives, pp. 120, 140	3078
Draft Environmental Statement, OCS sale no. 42, Proposed 1977 Outer Continental Shelf Oil and Gas Lease Sale Offshore North-Atlantic States, pp. 961-964, 988-989	3081
Programmatic Program Decision Option Document Outer Continental Shelf Accelerated Leasing Program (dated September, 1975)	3088
Program Decision Option Document Sale No. 40 Mid-Atlantic OCS	3148
Sale No. 40 Decision Memoranda	3216
Call for Bids and Operating Orders (Federal Register, Volume 41, Number 138 - July 16, 1976)	3234
Geological Survey; Mid-Atlantic Area Final Orders; (1 through 5, 7 and 12) (Federal Register, Volume 41, Number 134 - July 12, 1976)	3239
Oil and Gas Lease of Submerged Lands under the Outer Continental Shelf Lands Act (Form 3300-1 - May, 1976)	3251
Appendix on Characteristics of Inorganic Metal Pollutants Taken from the National Academy of Science/National Academy of Engineering (1972)	3290
Written Testimony of George L. Donkin sub- mitted on Preliminary Injunction Hearing	3314
Article Appearing in the Wall Street Journal on June 17, 1976 entitled "U.S. Sets First Sale of Oil, Gas Leases in Atlantic Aug. 17"	3401

	Page
Article appearing in the New York Times on June 17, 1976 entitled "Sale of Offshore Leases for Oil Drilling Slated"	3402
Statement of President Richard Nixon appearing in Volume 9 - Number 16 of PRESIDENTIAL DOCUMENTS	3403
Statement of Dr. Kenneth Lay dated September 12, 1973	3414
Statement of President Richard Nixon appearing in Volume 10 - Number 4 of PRESIDENTIAL DOCUMENTS	3429
Memorandum dated September 18, 1974 from Jared G. Carter to Director, Bureau of Lands Management	3445
Press Release from the Office of the White House Press Secretary dated November 13, 1974	3448
Press Release from the Department of Interior dated November 14, 1974	3450
State of the Union address by President Gerald R. Ford on January 15, 1975 - PRESIDENTIAL DOCUMENTS, Volume II - Number 3	3455
Article appearing in the Bergen, New Jersey, Sunday Record dated February 2, 1975	3464
Press Release from the Office of the White House Press Secretary dated July 9, 1975	3466
Department of Interior News Release dated March 3, 1976	3468
Memorandum of the United States Department of Interior dated August 11, 1975 from Assistant Director, Minerals Management to Team Leader, Atlantic OCS office	3476
Memorandum dated March 24, 1975 from Assistant Secretary - Program Development and Budget to Assistant Secretary - Energy and Minerals	3478
A Decision Memoranda on Proposal for Accelerated OCS Leasing	3480

Letter dated July 19, 1976 from Lawrence R. Hoesse, Esq., Division of Energy and Resources to Cyril Hyman, Esq.	3501
Portions of Interrogatories and Responses thereto filed in the United States District Court, Central District of California in the case of <u>People of the State of California ex rel. v. Morton</u>	3506
Letter dated June 28, 1976 from Rebecca W. Hanmer, Office of Federal Activities of EPA to Mr. Curtis J. Berklund	3512
Department of Interior News Release dated May 5, 1976	3514
Draft Programmatic Statement (Volume 1 - Page 1).	3518
Draft Programmatic Statement (Volume 2 - Pages 425-426)	3519
OCS Oil and Gas - An Environmental Assessment - A Report to the President by the Council on Environmental Quality - (Volume 1, pp. 58, 149-152)	3521
Curriculum Vitae of James Kenneth Mitchell	3526
List of Papers Presented and Publications of James Kenneth Mitchell	3532
Coastal Effects of Offshore Energy Systems, United States Congress, Office of Technology Assessment, November, 1976, pp. 16-19, 37-38, 43-46, 63-66, 74, 126, 130-140, 143, 145, 147-150, 156-161, 164-165, 170-171, 186-187	3536
Vol. II: Working Papers -- Coastal Effects of Offshore Energy Systems, United States Congress, Office of Technology Assessment, November, 1976, Working Paper #5, pp. 5-11, 17, 19, 20, 47-48, 55-65; Working Paper #7, pp. I, II-1 - II-3, III-1 - III-15, IV-1 - IV-10, V-1 - V-8	3583
Affidavit of Cecil D. Andrus sworn to the 11th day of March, 1977	3648
Department of Interior News Release dated March 1, 1977	3650

Programmatic PDOD
on the
OCS Accelerated Leasing Program

Office of OCS Program Coordination
September 1975

Programmatic PDOD

- I. Context of the Decision to Accelerate Leasing
 - A. Introduction
 - B. Background of the Decision: Insecure and Expensive Oil Imports
 - C. Comparison of OCS Leasing with Other Possible Policy Responses to the Oil Import Problem
 - II. Proposed Action
 - A. Description of the Proposed Action
 - B. Environmental Impacts of Proposed Action
 - III. Alternatives to the Proposed Action
 - IV. Other Policy Issues Which May be Decided at This Time
 - V. Summary and Checklist of Options
- Footnotes

Office of OCS Program Coordination
September 1975

3090

Programmatic PDOD

I. Context of the Decision to Accelerate Leasing

A. Introduction

On January 23, 1974, President Nixon announced a number of executive actions designed to aid in achieving energy self-sufficiency for the U.S. One of these actions was an increase in OCS oil and gas leasing, so that 10 million acres would be leased in 1975.

Since January 1974, the Administration commitment to a 10-million acre leasing target has been abandoned. However, there remains a commitment to substantially accelerate OCS leasing.

This Program Decision Option Document considers the following proposed action to accelerate OCS leasing:

The action is a proposed program to accelerate Outer Continental Shelf (OCS) oil and gas leasing by the Federal Government in calendar year 1975 and succeeding years. This acceleration would occur nationwide according to a revised proposed OCS planning schedule of six proposed lease sales for 1975 and six possible lease sales per year for the period 1976-1978, including some or all frontier areas by the end of 1978.

A final Environmental Impact Statement which considers this proposal was published on July 11, 1975.

This PDOD is organized as follows. In the next section there is a general introductory discussion of the background to the proposed action. Here the problem of insecure and expensive oil imports is presented. Following this is a discussion of major policy responses to this problem, including acceleration of leasing to increase OCS oil production. Finally, there is a discussion of the potential for increased natural gas production resulting from accelerated leasing.

Section II of this document then discusses the proposed action and its environmental impacts. In Section III, specific alternatives to the action are presented and discussed. Section IV raises some additional policy issues. These are issues which could be decided in conjunction with a decision regarding the proposed action. However, decisions on these issues may also be made independently at a later time. Finally, Section V provides a summary and checklist of the options for the Secretary's consideration.

B. Background of the Decision: Insecure and Expensive Oil Imports

Domestic production of petroleum peaked in 1972 at a rate of 11.2 million barrels per day (mbd). Since that time production has declined to 10.5 mbd in 1974. Petroleum consumption, on the other hand, has continued to increase, and imports have risen from 4.5 mbd in 1972 to 6.0 mbd in 1974.

During the 1973 Mideast war, the Arab oil producers imposed an embargo on shipments of oil to the U.S. and certain other countries. This occurrence demonstrated the vulnerability of the U.S. to interruptions in imported petroleum supply. According to FEA estimates, the embargo cost \$16-\$33 billion (1974 dollars) in terms of GNP loss alone.

During and after the Arab oil embargo, the OPEC cartel rapidly raised the price of oil. World prices rose as high as \$20 per barrel at one time. Lately prices have been stabilized at around \$11-\$12 per barrel, and supported at that level through production cutbacks among the cartel members. Even at this level, however, imported oil costs the U.S. \$25 billion per year.

Given this situation, we can specify the following possible policy responses that the U.S. might take:

- Accelerate OCS leasing in order to increase OCS oil and gas production.
- Do not accelerate leasing, and instead continue to rely on imports.
- Do not accelerate leasing, and instead increase production from non-OCS energy sources.
- Do not accelerate leasing, and instead reduce imports through a program of energy conservation.

The above policy responses could have been specified in other ways, of course, and it is likely that our ultimate response will be some combination of policies. However, since this PDOD is considering whether to accelerate OCS leasing, the above specification of policy responses is appropriate for purposes of this discussion.

In the next section, increased OCS production is compared to continued imports, other energy, and conservation, in order to evaluate accelerated OCS leasing relative to the other policy responses.

C. Comparison of Accelerated OCS Leasing with other Possible Policies

Responses to the Oil Import Problem

3033

The OCS has significant potential as a source of new domestic oil and gas production. Of 290 million OCS acres considered prospective for oil and gas, only 22 million have been offered for leasing. Most of these acres, moreover, are in the Gulf of Mexico. Thus, especially in the frontier OCS areas, there is a great deal of promising acreage which might produce substantial amounts of oil and gas. The final EIS estimates that accelerated leasing could result in increased production of 3 mbd of oil and 12 bcf of natural gas per day. This is about 10 quadrillion BTU's per year.^{1/}

1. Accelerated OCS Leasing vs. Continued Oil Imports

In deciding whether to explore and develop the OCS or to import oil, two things should be considered. First are the dollar costs of obtaining oil from either source. Second are the environmental costs of obtaining oil from either source.

At the present time, the dollar costs of oil produced from the OCS appear to be significantly lower than the dollar costs of imported oil. The costs of the latter are simply the prices we pay, currently \$11-\$12 per barrel. The costs of OCS oil have been variously estimated to range from \$1.00-\$7 per barrel.* According to the Project Independence study, the OCS could produce an additional 3 million barrels per day of petroleum, for a cost of \$7 per barrel or less.^{2/} Department of Interior estimates indicate that the best million acres of OCS land in various frontier areas

* These are real resource costs, exclusive of transfer payments such as bonuses.

could produce oil for \$1.00-\$2.50 per barrel.^{3/} Thus, at least for some of the OCS lands, dollar costs of oil production are drastically lower than the costs of oil imports. Other OCS lands will have higher costs, but substantial production appears attainable for an average cost below \$7 per barrel, which in turn is significantly below the cost of imported oil.

Probably the most important environmental costs of OCS oil production arise from the risk of oil spills. While this risk is widely recognized in the case of OCS production, it is not always acknowledged that the same risk exists whenever oil is imported by tankers. In fact, the evidence suggests that the risk of oil spills may be greater if oil is imported in tankers than if oil is produced offshore and transported onshore in pipelines.

As reported in the Programmatic EIS^{4/}, the relative oil spill rates for tankers and OCS production are as follows:

tankers:	.00016
OCS production:	.00009

This means that for every 100,000 barrels of oil imported by tankers, 16 barrels would be spilled, on average. On the other hand, for every 100,000 barrels of oil produced offshore, 9 barrels would be spilled, on average.

spill
where
tankers
windward-

If the above rates are reasonable predictors of future spill rates, then the risks of oil spills will be reduced whenever OCS production, transported ashore by pipelines, displaces foreign imports transported in tankers. Substantial foreign tanker imports are now being landed on the East Coast, Gulf Coast, and Pacific Coast.^{5/} These imports could be displaced by new OCS production off these coasts, and it is reasonable to assume that any new OCS production off these coasts would be transported ashore by pipelines; about 90 percent of Gulf of Mexico OCS production is landed in pipelines. Therefore, new OCS production realized off the Atlantic, Gulf and Pacific Coasts should result in a net decrease in the risks of oil spills on those coasts.

*Alaska
more
less
more
less*

OCS production from Alaska is different, however. Here production will likely be carried to Pacific ports in tankers. This means there will be no net decrease in the risk of Pacific Coast oil spills as a result of increased Alaska offshore production. Moreover, there will be a net increase in the risk of oil spills off the Alaska Coast as a result of this production. Therefore, in the case of Alaska, the net dollar cost savings of OCS production over imports must be balanced against the net increase in risks of oil spills off the Alaska Coast. This is in contrast to other OCS production, which has a net savings of both dollar costs and environmental costs, when compared to the alternative of continued imports.

Energy vs. Other Energy Sources

OCS energy should be considered in relation to each type of non-OCS energy alternative, as a means for reducing oil imports. Comparisons of alternatives can be made on the basis of production costs, environmental costs, and potential production rates. In such comparisons, OCS energy production would be considered desirable under either of the following alternative conditions:

- OCS energy has lower total (production and environmental) costs than all non-OCS energy sources.
- OCS energy has higher total costs than some non-OCS energy sources, but the latter sources cannot produce enough energy to eliminate oil imports.

Using these criteria of desirability, three major types of non-OCS energy sources are considered:

- (a) non-petroleum sources
- (b) unconventional petroleum sources
- (c) conventional petroleum sources

(a) Non-petroleum sources. The chief non-petroleum energy sources that could reduce oil imports are coal and nuclear energy. These fuels can be used to replace petroleum in electrical generation, and electric power can be used as a substitute for petroleum derived power in certain applications.

According to unpublished FEA estimates, in 1985 only about .5 mbd of petroleum could be saved by these actions, at an equivalent cost of \$6.50 per barrel. For a cost of \$8.50 per barrel, another 2.5 mbd of petroleum could be saved.

In addition to the above dollar costs, there would also be environmental costs. Coal mining, if it is strip mining, has significant impacts, and burning coal has impacts on air quality. Nuclear power has potential safety problems associated both with operations and with waste disposal.

(b) Unconventional petroleum sources. These sources are shale oil and coal liquifaction technology. According to FEA estimates, both are quite expensive. Shale oil production is estimated to cost \$8.00 per barrel, while coal liquifaction may be only marginally economic even at \$11 per barrel.* Also, both energy sources have environmental impacts. Shale oil production has significant waste disposal problems, and coal liquifaction has impacts on the environments both through coal mining and through waste disposal during the liquifaction process. Finally, FEA estimates indicate that about 2.5 mbd of shale oil production and negligible coal liquifaction is possible in 1985.

(c) Conventional petroleum sources. Because onshore areas have been quite thoroughly explored for oil and gas, the chief sources of increased conventional petroleum production is secondary and tertiary recovery from existing wells. According to FEA estimates, secondary recovery production of 2.3 mbd could be obtained for as little as \$5 per barrel. Additional secondary recovery and tertiary recovery would cost \$9-\$11 per barrel, however. There would be little environmental cost associated with this onshore enhanced recovery.

* Other more recent analysis indicate these costs may be even higher.

Conclusions. Certain non-OCS energy alternatives appear quite desirable, especially the lowest cost secondary recovery alternative. This alternative alone could not eliminate imports, however, and most of the other non-OCS energy alternatives appear less desirable than OCS energy on a dollar cost basis, and perhaps also on an environmental cost basis. Certainly, the available information suggests that OCS energy is one of the better alternatives we have for reducing imports, and that it would probably be desirable as part of any reasonable set of alternatives chosen to reduce oil imports.

3. OCS Energy vs. Conservation

Energy conservation is an alternative to OCS production as a policy to reduce oil imports. Major conservation alternatives include:

- o mandatory automobile efficiency standards
- o automobile gas taxes
- o incentives to retrofit insulation
- o thermal standards for new structures
- o lighting standards
- o appliance efficiency standards

Conservation is often considered to be an appealing policy because there are no environmental costs to conserving oil. This is in fact true, as long as conservation of oil does not simply imply greater consumption of other fuels which have environmental costs as great or greater than those of oil consumption.

It is important to distinguish between two different kinds of conservation measures. Some conservation measures actually produce a net savings in costs to the consumer. This is because the cost of the conservation measure is less than the value of the energy which is saved. The Ford Foundation report, A Time to Choose, indicates that there are conservation measures which can reduce costs to the consumer (see the Programmatic EIS pp.295-301 for summary). It is reasonable to expect that conservation measures which save the consumer money will be undertaken voluntarily over time. Thus, these measures should become implemented without any government intervention.

The conservation measures listed above are of a different type; they are measures which require government intervention. These measures require intervention because they would not otherwise be undertaken by consumers, presumably because they impose net costs on the consumer.

It is not possible to estimate exactly how costly these measures would be. However, the costs could become quite large if really stringent conservation measures are implemented. The relevant policy question is how high must conservation costs be before it is desirable to increase OCS production rather than conserve oil.

As was indicated in section I C1, the production costs of OCS oil range from \$1 to \$7 per barrel. In addition, there are environmental costs of production which cannot be so easily specified. However, as long as the total cost per barrel of OCS oil is less than the price of oil, it is better to increase OCS production by one barrel than to conserve an additional barrel through mandatory conservation measures. This is true because the barrel of production has a price (value) in excess of its total cost; thus it provides a net savings if it is produced. Mandatory conservation, on the other hand has net costs. It is therefore better to increase OCS production than to impose mandatory conservation if the total production cost of OCS oil is less than its price.

The above analysis implies that if mandatory conservation is appropriate as a policy to reduce imports, it is appropriate only after all domestic supply alternatives costing less than \$11 per barrel (the current price of oil) have been exploited. At this point, if further import reduction is still warranted, we should be willing to consider mandatory conservation, as well as production of domestic oil (including OCS oil) which costs more than \$11 per barrel.

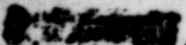
D. The Role of Natural Gas Production from Accelerated OCS Leasing

The above discussion of energy alternatives has focused primarily on the potential for increased oil production from the OCS to reduce our dependence on insecure, expensive oil imports. It should be recognized, however, that the OCS is also a potential source of increased natural gas production. On a BTU basis, the Federal offshore areas contain more natural gas than oil, based on the resource estimates published by Geological Survey in 1975. 6/

While natural gas might be substituted for oil to reduce imports, the more pressing concern at the present time is to supply enough gas to prevent shortages from developing amongst current users of gas. Of course, if natural gas shortages lead to higher imports, alleviating shortages will also tend to reduce oil imports. However, the immediate issue in OCS natural gas production is whether or not OCS production of natural gas should be increased to prevent shortages of gas amongst current users. There is really little controversy about this issue; most people would agree that increasing natural gas production from the OCS is a good idea.

The case for increasing natural gas production is relatively simple. Natural gas production has none of the potential environmental costs associated with oil spills. Therefore, as long as the value of natural gas exceeds the costs of its production, there is a net benefit from gas production. Since lessees will not produce gas if the price is less than production costs, we can be confident that any gas production which occurs on the OCS has net benefits. *

*Of course, if prices are controlled at a level lower than the true value of natural gas, we cannot be equally confident that gas production which does not occur has no net benefits. This, however, is a problem that cannot be solved through leasing policy.


The conclusion to be drawn regarding natural gas production is that there are clear benefits associated with any increase in gas production which can be obtained from the OCS as a result of leasing. Therefore, if leasing to obtain increased oil production is desirable, then the associated benefits of increased gas production simply make leasing all the more desirable.

II. The Proposed Action

A. Description of the Proposed Action

The action is a proposed program to accelerate Outer Continental Shelf (OCS) oil and gas leasing by the Federal Government in calendar year 1975 and succeeding years. This acceleration would occur nationwide according to a revised proposed OCS planning schedule of six proposed lease sales for 1975 and six possible lease sales per year for the period 1976-1978, including some or all frontier areas by the end of 1978. The revised planning schedule is presented in Figure 1.

According to the EIS, the proposed action could result in increased oil production of 3 million barrels per day, and increased natural gas production of 12 billion cubic feet per day. These amounts are about 20 percent of current consumption rates of oil and natural gas.

As discussed in the first section of this PDOD, increased OCS production of oil and natural gas would reduce our dependence on foreign oil imports, which are more costly than OCS production, and which are insecure sources of supply. The economic benefits from the proposed action thus include the cost savings over imported oil and the benefits of relying on a secure source of supply for a greater proportion of oil consumption.

The section below discusses the environmental impacts of the proposed action. It should be remembered, however, that much the same or even worse environmental impacts could result from not adopting the proposed action. This

JUNE 1975
(REVISED NOVEMBER 1974 SCHEDULE)

#11 No. 1000 Seal as required
 C Hall & Associates
 76 Spruce Street New York
 Tel. 9-8888 ext. 1-24
 14-A Wall Street
 PM Public Hearing
 FCS Final Environmental Statement
 N Notice of Sale
 S State May Conduct Sale

Relevant studies scheduled are restricted to open research; personnel and equipment being available to perform the studies. Sales are contingent upon tertiary being available for expansion and development. A decision whether to hold any of the leave order being will not be made until completion of all necessary studies of the economic impact and the holding of public hearings; as a result of the environmental, technical, and economic studies employed in the decision-making process, a decision, may, in fact, be made not to hold any sale on this schedule.



Ernest T. Rankland.

Director,
Bureau of Land Management

BEST COPY AVAILABLE

is true because a decision not to develop the OCS resources will most likely mean that more foreign oil will be imported. As discussed in Section I, oil importation may in many cases produce greater environmental impacts than OCS production. The impacts discussed below are therefore gross impacts of the proposed action. If impacts were instead expressed as net impacts, vis a vis the alternative of oil importation, the impacts of the proposed action would in some cases be beneficial to the environment.

B. Environmental Impacts of Proposed Action

A decision to proceed with the proposed accelerated leasing program would result in subsequent considerations of each of the proposed sales shown in Figure 1. These subsequent considerations, however, could conclude that some or all sales should not take place or that they should only take place under certain specified conditions which cannot be anticipated at this time. Therefore, a decision to proceed with the accelerated leasing proposal does not by itself insure that lease sales and their presently anticipated environmental impacts will in fact occur. However, it is likely that a decision to proceed with the proposed accelerated leasing program will be followed by decisions to proceed with particular sales. For this reason, the environmental impacts that would result from such decisions are characterized in this PDOD as impacts of the decision to proceed with an accelerated leasing program. "

If a decision is made to proceed with accelerated leasing and if subsequent decisions to hold lease sales are made, there will be

[REDACTED]

unavoidable impacts on the environment. Following is a brief description of the major impacts specified in Chapter V of the EIS.

General Unavoidable Impacts

1. Marine organisms. Impacts on marine organisms can result from direct physical operations and the discharge of effluents, including spilled oil, as a result of operations. Physical operations that impact marine organisms are platform and pipeline construction activities. Effluent discharges impacting marine organisms include crude oil, fuels and solvents, separator fluids, discharged formation waters, and drilling muds.

Marine organisms which are affected range from phytoplankton (vegetation), to sea birds and marine mammals. Effects on organisms may in many cases be lethal. However, based on available evidence, there is little reason to expect that lasting damage to species populations occurs, except in cases where an endangered species may be involved. The greatest risks are apparently to bird populations, many of which are threatened or endangered.

2. Wetlands and beaches. Wetlands and beaches will be disturbed by the laying of pipelines and by any accidental oil spills which may reach shore. Vegetation and non-motile animals will be affected, and recreational activities temporarily disturbed, by pipeline burial. Accidental spills will also affect biota and interfere with recreational activities. These impacts are obviously most significant if the affected areas have special value for one reason or another.

3. Air quality deterioration. Little air quality deterioration should occur except in the case of an accident such as a fire or an oil spill. This would result in release to the atmosphere of sulfur compounds, smog creating hydrocarbons, and carbon compounds.
4. Interference with commercial fishing. Interference would arise from the physical presence of drilling rigs and production platforms and from associated underwater obstructions. In addition, accidental oil spills could contaminate commercial fish species making them unmarketable.
5. Interference with ship navigation. As long as ships utilize established fairways, very little interference with navigation should result from oil and gas operations.
6. Damage to historical and archeological sites. If such sites are not detected by required geophysical surveys, they could be damaged by oil and gas operations. In addition, spilled oil could contaminate archeological sites.
7. Degradation of aesthetic values. Oil and gas operations could affect aesthetic values due to the visibility of rigs and platforms, noise from operations, or odor from refineries and treatment plants.
8. Socioeconomic impacts. These are the impacts on coastal economies and populations of offshore oil development. Generally, these impacts would not appear to be particularly significant in regions which are already industrially developed and heavily populated, such as the Middle Atlantic region. On the other hand, for an area such as Alaska, the onshore impacts of offshore oil development will be very noticeable

due to the lack of industrial development in that area at the present time.

Impact of Oil Spills in Specific OCS Areas

Since the most significant impacts of oil and gas operations would result from accidental oil spills, this source of environmental impacts is considered in greater detail on a region-by-region basis, for the OCS areas represented in the proposed sale schedule.

Reproduced below is Table III from the EIS which provides estimates of the mean and maximum (only 5 percent chance of a higher value) expected amounts of spillage for the various OCS areas. The first two columns of Table III present mean and maximum production volumes. These production volumes are derived from total estimated resources in the areas. Therefore, the production volumes are actually overstatements of production volumes expected from leasing, since all of the resources in any given area are unlikely to be leased in a first round of lease sales. The third column of Table III presents estimated throughput spill rates. These are derived from historical data on spill rates, and they reflect for each area the anticipated means of landing oil (tanker or pipeline) and the disposition of landed oil (whether it is used onshore or "exported" by tanker to another location), both of which affect the throughput spill rates. Finally, the fourth and fifth columns represent production volumes multiplied by throughput spill rates.

As the EIS warns, the numbers in Table III imply a good deal more precision in the spill estimates than is actually justified. It may therefore be more meaningful to simply categorize the areas in the

following way:

A. High Expected Spills (20,000 - 50,000 bbl/yr.)

1. Chukchi
2. Beaufort Sea
3. Bering Sea
4. Central and Western Gulf of Mexico, shallow and deep

B. Moderately High Expected Spills (12,000 - 20,000 bbl/yr.)

1. S. California, shallow and deep
2. Gulf of Alaska
3. Santa Barbara, shallow and deep

C. Moderate Expected Spills (3,000 - 12,000 bbl/yr.)

1. Cook Inlet
2. Mafla, shallow and deep
3. Bristol Bay
4. Mid-Atlantic
5. North Atlantic

D. Low Expected Spills (0 - 3,000 bbl/yr.)

1. N. and Central California
2. S. Atlantic
3. Aluetian Shelf
4. Washington and Oregon

Table III provides a rough idea of the level of expected oil spillage for the OCS areas. In order to judge the significance of these amounts of spillage, it is necessary to know what resources exist in each area

and would be adversely affected by an oil spill. Table 122, again reproduced from the EIS, provides information regarding wildlife resources, unique and highly productive areas, fishery resources and aesthetic and recreational resources for each OCS area. The table is largely self-explanatory. It should be used in conjunction with the expected spill information above to judge the relative significance of environmental impacts of oil spills in each of the OCS areas.

Table 122, page 1

TABLE 122. AREA BY AREA SUMMARY OF SIGNIFICANT AND POTENTIALLY VULNERABLE RESOURCES

CCS AREA	WILDLIFE RESOURCES			UNIQUE & HIGHLY PRODUCTIVE AREAS		FISHERY RESOURCES 1/		AESTHETIC & RECREATION RESOURCES
	birds	marine mammals	other	estuaries	refuge/management areas	commercial	recreational	
North Atlantic	300,000 waterfowl 3.5 to 4 million coastal and seabirds			70% commercially important species use for spawning, nursery, or feeding	56 Governmental areas	1.9 billion pounds; value \$16 million	1.7 million salt water anglers harvested 267 million pounds	All Northeast total recreation days 735,000,000 Swimming - primary; Boating (fishing) - secondary
Mid-Atlantic	836,000 waterfowl Over 5 million coastal and seabirds			Large areas and very important to shellfish and waterfowl	Nearly 100	970 million pounds, value \$85 million	1.8 million salt water anglers harvested 246 million pounds	
South Atlantic	567,000 waterfowl. Important bird habitat areas		Various turtles nest on beaches. Several endangered species of turtles	Some 2,650 miles of estuarine and beaches - almost a continuous estuary	17 including some 1.5 million acres	220 million pounds; value \$54 million	1.9 million salt water anglers harvested 404 million pounds	191,000,000 Recreation days; Swimming primary (most is S. Fla., no drilling)
East & Central Gulf of Mexico	3.4 million waterfowl Louisiana alone; other birds abundant but numbers not known	Florida manatee endangered; bottlenose dolphin most common	Several species of turtles occur including endangered species American Alligator endangered common in coastal areas	6.3 million acres of open water estuaries plus over 2.5 million acres of tidal marsh. Upwards of 90% of commercial fish catch estuarine dependent	5, totaling over 200,000 acres in Louisiana, Florida 13 Federal areas; 30 State; 3 national parks	100 million pounds; value over \$60 million	1.55 million salt water anglers harvested 334 million pounds	Highly used for sport-fishing. Beaches less prevalent except parts of Florida Panhandle and Galveston (heavy use). Heavy hunting in marshes.

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3111

Table 122, page 2

TABLE 122 (cont.) AREA BY AREA SUMMARY OF SIGNIFICANT AND POTENTIAL VULNERABLE RESOURCES

OCS AREA	WILDLIFE RESOURCES			UNIQUE & HIGHLY PRODUCTIVE AREAS		FISHERY RESOURCES 1/		AESTHETIC & RECREATION RESOURCES
	birds	marine mammals	other	estuaries	refuge/mange-ment areas	commercial	recreational	
West Gulf	400,000 geese .7 to 1.8 million ducks 150,000 coots small breed- ing popula- tion; brown pelican undisturbed		Marine turtles some endangered occur; American Alligator en- dangered com- mon	1.8 million acres; 150,000 acres of oyster reefs. Over 90% of com- mercial catch estuarine dependent	5 Federal areas totaling 134,000 acres	107 million pounds value \$68 million mostly shrimp and oysters	818,000 salt water anglers harvested 131.6 million pounds	873,000 visitors Camping, swimming, sportfish- ing
Southern California	50,000 water fowl winter 100 species of waterfowl	Abundant 30 species present	Several species of marine turtles occur Important harp harves	8,500 acres remain over 90% of ori- ginal estuaries and wetlands developed 13 acres	Few in number and small in size	161 million pounds valued at \$1.6 mil- lion; 10 million pounds shell- fish valued at \$3.9 million	Important party boat fishing 4.7 million angler days a year	All California 127,000,00 recreation days at beach only
Santa Barbara	See Southern California for numbers Channel Islands end- angered and rare for many species	large popula- tions of many species 100,000 winter porpoises and sea lions in- habit area	harp hogs 120,000 tons harvested	Few in number and small in size	Channel Island National Monument	30 million pounds value at \$1.9 million shell- fish \$4.4 million pounds valued at \$4.5 million	32 party boats carried \$2,500 anglers, shore fish- ing also important	7,000,000 visitors & State-run beaches along coast high value ocean view property
Fortuna & Central California	300,000 wintered in coastal coun- ties	sea lions, seals sea otter, porpoises and whales		100,000 acres remain over 70% of original lost to development	16 Federal & State parks, one national seashore	71 million pounds value at \$14 million 13.8 million pounds shell- fish valued at \$4 million	little data except for salmon fishery	

Table 122, page 3

TABLE 122 (cont.) AREA BY AREA SUMMARY OF "GIFT" AND POTENTIALLY VULNERABLE RESOURCES

OCS AREA	WILDLIFE RESOURCES			UNIQUE & HIGHLY PRODUCTIVE AREAS		FISHERY RESOURCES		ESTHETIC & RECREATION RESOURCES
	birds	marine mammals	other	estuaries	refuge/mangement areas	commercial	recreational	
Washington & Oregon	10 million ducks, 1 million geese use the flyway, 100,000 waterfowl wintered; hundreds of thousands of colonial sea birds, 430,000 annual seabird production	Seals, sea lions, one sea otter area, whales	Kelp beds important habitat subtidal rocks and banks	Oregon 14 totaling 56,000 acres Washington 2 large areas, Willapa Bay and Grays Harbor, Puget Sound 1.6 million surface acres	Oregon Islands National Wildlife Refuge - 29 islands totaling 367 acres, other areas as well	163 million pounds valued at \$36 million salmon, 46 million pounds shellfish valued at \$12.7 million	Poor data, salmon most important with 1.7 million fish taken, clamming & crabbing also important	170,000,000 visitors Camping, boating, fishing, swimming
Gulf of Alaska	Very important waterfowl area millions of waterfowl 10's of millions of other birds many endangered species	Sea otters 5,000 Sea lions 46,000 harbor seals 15,000 to 26,600 northern fur seal 50,000 during spring migration 20 species of cetacean		Extensive, complex and important to commercial fisheries, birds, marine mammals and other wildlife	Three areas in southeast area	152 million pounds valued at \$39 million; shellfish 29 million pounds valued at \$5 million	NOT DISCUSSED	5,500,000 recreation visits for Gulf of Alaska and Cook Inlet
Cook Inlet	Very important area counts of populations not provide for entire area	1,000 sea otter 1,000 harbor seal, 10,000 sea lions, 400 beluga whales	Coastal areas support moderate populations of bald eagles and peregrine falcons	All of Cook Inlet is an estuary.	Tuxedni and the Kenai National Moose Range	21.5 million pounds of salmon, 7.2 million pounds shellfish valued at \$5 million	Intensively utilized by residents of Anchorage	

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3113

Table 122, page 4

TABLE 122 (cont.) AREA BY AREA SUMMARY OF SIGNIFICANT AND POTENTIALLY VULNERABLE FEATURES

OCS AREA	WILDLIFE RESOURCES			UNIQUE & HIGHLY PRODUCTIVE AREAS		FISHERY RESOURCES		AESTHETIC RECREATION RESOURCES
	birds	marine mammals	other	estuaries	refuge/management areas	commercial	recreational	
Southern Aleutian Shelf (Kodiak)	Not within major water fowl flyway 200,000 wintering waterfowl. Adequate sea bird data not available.	4,000 sea otters; 37,000 sea lions; 15,000 harbor seals.	Kodiak Brown bear.	NOT DISCUSSED	5 national wildlife refuges totalling 4.8 million acres.	113 million pounds valued at \$29 million of crab, shrimp, and salmon other bottom fish also abundant.	NOT DISCUSSED	900,000 recreation visits.
Bristol Bay & Bering Sea Shelf	One of the great bird concentration complexes of the world. Tens of millions of seabirds; millions of waterfowl. A major portion of the entire population of many species. St. George Island 1st/2nd least outlets.	Pribilof Islands fur seal herd of about 1.5 million; St. Lawrence Island over 35,000 harbor seals; 10,000 to 20,000 walrus; 15.7 to 34.4 thousands several species of whales.	The waters of Bristol Bay constitute one of the most biologically productive areas in the world. Nunivak Island only muskox herd in the U.S.	Isambek Lagoon millions of birds.	7 national wildlife refuges totalling 4.6 million acres.	Billions of pounds in foreign fisheries - Bristol Bay salmon, 50 million fish worth \$20 million. Also fur seal harvest.	Some sport fishing for salmon, trout and grayling.	All north-west.

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III. Alternatives to the Proposed Action

3115

The EIS specifies a large number of alternatives to the proposed action. For purposes of this discussion, the alternatives are grouped into two major categories: (1) alternatives which have different environmental implications, and (2) other leasing policy alternatives which do not have different environmental implications. Alternatives in the second group need not be considered and decided upon in the context of this PDOD.

This section of the PDOD presents and discusses the alternatives which do have different environmental implications. The alternatives of this kind discussed in the EIS are the following:

1. Defer a decision on the proposal or take no action
2. Halt OCS leasing
3. Postpone leasing and wait for a national energy plan
4. Slow the rate of leasing
5. Conserve energy
6. Use alternative fuels
7. Leasing OCS areas in a different order
8. Separation of exploration and development ("Two Stage Leasing")

1. and 2. Defer a decision, take no action, or halt leasing.

These alternatives are treated as one because they have essentially the same implications; these are also all equivalent to a no decision at this time with regard to the proposed action.

3115
AESTHETIC
RECREATION
RESOURCES

900,000
recreation
visits

All north-
west

3116

If a decision is made not to proceed with accelerated leasing, the economic benefits of lower cost oil supply and secure oil supply from the OCS will not be realized. On the other hand, some of the environmental impacts of accelerated leasing may be avoided. However, if a no decision on accelerated leasing will mean a higher level of oil imports, then many environmental impacts will not be avoided, and may even be aggravated, by a no decision regarding accelerated leasing. This point is discussed above in Section IC.

3. Postpone leasing to wait for a National Energy Policy. The consequences of adopting this alternative depend upon whether or not the National Energy Policy (NEP) ultimately adopted will include accelerated OCS leasing as a component. If the NEP does not include OCS leasing, then postponement of a decision on leasing now would avoid the mistake of having too much leasing in the NEP package. This would occur, however, only to the extent that the NEP cannot be formulated before substantial amounts of leasing occur. That is, if the NEP is not formulated for, say 1 1/2 years, then 50 percent of the proposed acceleration of leasing will have taken place by the time the NEP is formulated. If, however, the NEP is determined more quickly, then it is correspondingly less likely that too much accelerated leasing will be included in the package of energy alternatives in the NEP.

If OCS leasing is not included in the NEP, it is presumably because OCS leasing is less attractive overall than the least attractive energy alternative which is included in the NEP. Therefore, the cost

of having included too much OCS leasing in the NEP is represented by the difference between the desirability of OCS leasing as an energy alternative, and the desirability of the last (and least desirable) alternative that should have been included in the NEP but is instead displaced by OCS leasing.

On the other hand, it is also possible that OCS leasing would be included in the NEP. In fact, the general discussion of energy policy alternatives in Section IC strongly indicates that accelerated leasing should play a significant role in any reasonable set of policies to deal with our energy supply problems. If the NEP does include accelerated leasing, then there will be costs to having delayed leasing rather than proceeding now. This is true because the benefits of accelerated leasing would be realized later if there is a delay to wait for formulation of the NEP.

4. Leasing at a slower rate. One of the most common objections to the proposed accelerated leasing program is that it implies excessively rapid leasing. The suggested remedy is to lease at a slower rate.

The following are the most important arguments raised to justify a slower rate of leasing:

1. There are not enough drilling rigs to develop large acreage offerings.
2. Large acreage offerings will depress bonus bids, and the public will fail to receive fair market value for resources sold.

3118

3. Environmental studies and onshore land use planning cannot be effectively accomplished under a fast leasing rate.
4. There is a possibility that circumstances will change in a few years, in such a way that OCS leasing will no longer look as attractive as it does now. This might happen if the value of oil fell because OPEC collapsed, or if our perception of environmental costs increased sharply.
5. There may be things we can learn about OCS development and production which would reduce environmental impacts of later OCS development in a go slow approach.

While the first three of these arguments are largely without merit, the last two may reflect valid concerns. Each of the five arguments is discussed in detail below.

1. Drilling rigs. It is often claimed that there are not enough drilling rigs available to allow a significant acceleration over historical leasing rates. There are a number of problems with this argument, however. First, drilling rigs are highly mobile, and many rigs are now working overseas would return to the United States if oil and gas prospects available here were better than those available elsewhere. Second, the objective in oil exploration is not to methodically drill one hole in every 5000 acre tract, but rather to drill holes in such a way as to maximize the value of oil discovered. This objective is furthered by increasing, rather than decreasing the amount and type of acreage available for exploration. In the North Sea, for example, an average of 1 exploratory hole per 250,000 acres available

resulted in 10 billion barrels of discovered reserves. Third, the total number of drilling rigs in the world can be expanded if there is certain to be enough acreage to keep more rigs employed. The best way to make certain acreage will be available is to put it under lease now. The drilling rig "shortage" is better thought of, therefore, as an inevitable "lag" between actions that make rig construction profitable (leasing) and the actual delivery of completed rigs.

2. Bonus Bids. Bonus bids might fall for either of two reasons. First, the value of resources being sold might fall due to expectations for lower oil and gas prices, poorer quality of the resources, or higher costs of development. If bids fall for these reasons, it means that the fair market value of resources has fallen, not that the public is failing to receive fair market value.

Bids might also fall, even with no change in resource value, if competition for leases diminishes. In this case, the public could fail to receive fair market value. While there is no way to say for certain that competition will or will not diminish, the Department can ensure that leases are not sold for less than fair market value through its bid rejection procedures. Over the last year, a number of steps have been taken to tighten these bid rejection procedures. As a result of such steps, rejected high bids have run as high as 20 percent of the total number of bids. Should competition diminish, therefore, protection of the public's interest in receiving fair value still exists.

3. Environmental studies and onshore planning. The argument here is that more time is needed to do adequate environmental and onshore

3120

planning. What this argument fails to consider, however, is that there will be a substantial delay of 3 to 6 years between leasing and initial production in the frontier areas. Since the exploration going on in the interim will have little environmental or onshore impact, it will be 3 to 6 years before substantial development impacts begin. This should provide enough time to accomplish necessary pre-impact studies and planning. Most coastal zone management plans, for example, will be completed by the summer of 1977.

In addition, individual lease sale impact statements will consider whether or not more study is required before a final leasing decision is made. It is probably better to arrange for leasing delays on a case-by-case basis in this way than it is to delay the leasing schedule as a whole.

4. Leasing becomes unattractive. If it is impossible to make OCS developers pay the full environmental costs of their development activities, developers will not necessarily make the right economic decisions about development. In this kind of situation, the government should attempt to modify development decisions in the appropriate ways. The problem here is that appropriate modifications could change over the next few years if certain factors, such as the price of oil, change. Therefore, if there is a possibility of a significant change in conditions within a short period of time, it might be wise to postpone a lease sale in order to find out whether or not that change actually occurs. For example, if OPEC is expected to collapse within three years or not at all, we might postpone leasing for three years to find out what actually happens to OPEC.

There are two other ways to handle the problem of changing conditions affecting the appropriateness of development. One is government exploration, in which no commitment to development is made for several years. The other is separation of development from exploration, in which a second review of the development decision is made in light of new conditions, after reserves have been discovered. Both of these alternatives are discussed as alternative 8 below.

5. Learning from experience. If experience could significantly reduce the environmental costs of OCS development, then it might be desirable to develop a schedule to take advantage of this. Such a schedule would probably be stretched out, and it would also have a particular ordering. This issue is discussed in detail below under alternative 7, leasing in different order.

Whatever the actual benefits of leasing delays may be, these benefits must be compared to the costs of delay. The costs of delay are relatively easy to measure. If an action has positive expected benefits now, then any delay of such an action reduces the discounted present value of the net benefits. This reduction in present value is the cost of delay.

The OCS leasing program appears to have significant net benefits at this time. These benefits are equal to the competitive value of the OCS lands, which has recently ranged up to 5 billion dollars for each 1 million acres, less any environmental costs of development. Assuming that environmental costs do not exceed the competitive value of OCS

lands, there are net benefits to OCS development and the present discounted value of these benefits will be lower, the longer they are postponed. With a 10 percent rate of interest, benefits are about 10 percent lower for every year that they are postponed. In order to justify slow leasing, therefore, the benefits of slow leasing must exceed these delay costs, which could be very large for substantial delays.

5. Energy Conservation. Section IC above contains a discussion of energy conservation as an alternative to accelerated OCS leasing. It is argued there that conservation measures which save the consumer money will be undertaken voluntarily by the consumer, and that mandatory conservation measures imposed by the government will have net costs to the consumer. Furthermore, it is argued that conservation measures which impose net costs on the consumer should not be undertaken if there are still energy supply alternatives with total costs (production plus environmental) less than their value. As was indicated, much oil production probably does have costs which are less than the value of the oil. Therefore, mandatory conservation is not a desirable alternative to accelerated OCS leasing, though it might be a desirable component, along with OCS production, of an overall energy strategy.

6. Alternative Fuels. The EIS cites and discusses briefly the following alternative energy supply sources:

1. oil imports
2. coal
3. nuclear
4. oil shale
5. onshore oil
6. hydroelectric
7. pipeline imports of natural gas
8. LNG imports
9. solar
10. geothermal

Alternative energy supply sources are also discussed above in Section IC. Specific consideration is given there to the first five sources listed above. It is concluded that from amongst these alternatives, OCS oil production is one of the most attractive.

The last five alternatives listed above either cannot supply significant amounts of additional energy (hydroelectric, geothermal) are expensive sources of energy (solar) or both (pipeline gas imports, LNG imports). In addition, none of these supply alternatives produce energy which can directly substitute for oil imports in the way that oil shale, onshore oil, liquified coal, and OCS oil can substitute. Therefore, the conclusion reached in Section IC regarding alternative energy supply sources remains valid. That conclusion is that the OCS is one of the most attractive available sources of increased domestic energy production.

7. Leasing in an order different from that indicated in the proposed schedule. The leasing order in the proposed schedule primarily reflects the likelihood that each area will make a significant contribution to our domestic energy supply. Two alternative orderings are suggested in the EIS. These are an ordering to save the environmentally

312.1 worst areas for last and an ordering to promote learning about hazards from initial (limited) experiences in the frontier areas.

Table 137 of the EIS, which is reproduced here, presents two possible schedules based on the "save the worst for last" principle. The orderings represented in the schedules reflect environmental impact data discussed earlier in Section IIB, as well as subjective judgments about the value of environmental resources (see the EIS, pages 341-346, for an explanation of these judgments.)

As is argued in the EIS, adopting one or the other of these alternative orderings would probably not have different environmental impacts from those associated with the proposed schedule. This is true because the decision process leading to a decision to lease, say in Alaska, would reach the same conclusion to lease or not lease whether the decision were made in 1975 or in 1978.

It would be possible, of course, to couple a "save the worst" ordering with a slower rate of leasing. In this case, there is more likelihood that a different decision might be reached regarding leasing in the last OCS areas to be considered, since they would be considered much later on. Viewed this way, the "save the worst" ordering principle is really a logical addition to the argument (discussed above under alternative 4) that we should lease slowly because leasing may become unattractive. As was indicated above, this point of view has some merit, although the issues it raises could alternatively be addressed through separation of exploration and development, which is discussed below.

Table 137

Schedules Based on Principle of
"Save the Worst for Last"

3125

	<u>A</u>	<u>B</u>
earliest	I. Gulf of Mexico and Northern Pacific Coast	I. Gulf of Mexico and Northern Pacific Coast
	II. All Atlantic areas	II. South Atlantic
	III. Southern California; Cook Inlet	III. North and Mid-Atlantic; Southern California; Cook Inlet
Latest	IV. All Alaska areas except Cook Inlet	IV. All Alaska areas except Cook Inlet

A sequence based on the principle of leasing to learn from experience, as described above, might take account of four distinct natural hazards or problems: ice, deep water, seismicity, and storms. Seismicity should probably be excluded from further consideration, however, on the ground that high-impact seismic events would be so rare that learning from experience might take a long time.

To learn about ice problems, it would probably be wise to lease and develop in the Beaufort and Chukchi Seas early, so as to permit technical experimentation there before the moving to the ice-impacted portion of the Bering Sea Shelf (Norton Basin), which is so rich ecologically.

To learn about storms one would presumably wish to continue experimenting in the Gulf of Mexico, and possibly even the South Atlantic before progressing to the Gulf of Alaska.

To learn about deep water, the most plausible strategy would be to continue experimentation in the deeper portions of the Gulf of Mexico, while reserving till the end of the schedule leasing deep water tracts offshore southern California.

A sequence based on the leasing to learn principle would also clearly require a slower rate of leasing. Since development in many areas will take 6 - 12 years, the last areas on a lease to learn schedule might not be considered for 15 to 20 years.

It is very difficult to predict how much benefit could be gained from a leasing schedule designed to take advantage of learning from experience. It is clear, of course, that the maximum conceivable benefit would be the elimination of all environmental costs of OCS development.

In considering the above schedules, any benefits of the different orderings coupled with slower leasing need to be compared to the costs of the delays involved. These costs were discussed above under alternative 4, leasing at a slower rate.

8. Separation of exploration and development ("two stage leasing").*

Under the current leasing system, lessees must submit development plans for review and approval, in order to develop any oil and gas deposits found. This review is intended to ensure that normal OCS operating orders are adhered to, and to determine whether any additional stipulations on lease development are justified by unusual environmental risks. However, the Department has no authority to deny a lessee's application for development approval. Under the current leasing system, therefore, the initial public decision to lease a tract is tantamount to a decision to permit development of the tract.

* In the EIS, an alternative is referred to as "two stage leasing." "Two stage leasing" refers to exactly the same thing as separation of exploration and development. Since the latter term is more generally understood, it will be used here.

The EIS discusses a variation of the current system of exploration and development, which might have favorable implications for protection of the environment. This variation is a system in which a second public consideration of development benefits and environmental risks would take place at the time lease development plans are reviewed for approval. Under such a system, development rights would no longer be automatically granted. Rather, if environmental risks were determined to exceed the benefits of development, permission to proceed with development could be denied, or at least suspended until such time as environmental risks no longer exceeded development benefits. (This could happen, for example, if new technology made development safer, or higher prices or additional resource data increased the expected benefits of development.)

The chief reason for advocating such a system is that conditions can change between initial exploration and initial development. Most obviously, our best estimate of reserves will often change after exploration. In addition, however, our expectations about future oil and gas prices or our judgments about environmental costs may also change. Because this is true, it is possible under certain circumstances that a decision to develop OCS resources would appear appropriate at the beginning of the exploration phase, but would later appear inappropriate at the beginning of the development phase. The advantage of separation would be that it allows for reassessment of the decision to go ahead with lease development, in light of actual conditions existing after exploration has taken place. However, before it can be decided to adopt any system like this, it is necessary to determine whether it is possible under existing law or will require new legislation.

There are two approaches to separating the exploration decision from the development decision. First, the government could do exploration by itself and then offer development leases if and when it chose to do so. Second, leases for exploration could be sold now, with a condition that development rights would be granted subject to a formal governmental review and approval process.

If separation is obtained through government exploration, there are substantial risks of inefficiency or even ineffectiveness in the exploration program. At present, oil and gas exploration on the OCS is carried on by a large number of explorers, following a diverse set of exploration strategies in any given area at any given time. Exploration of the OCS by the government, or by any single organization, would replace this diversity of competing strategies with a single strategy. However, the historical record strongly suggests that diversity in exploration strategies is essential to rapid and effective discovery of oil resources. Thus a policy of government exploration of the OCS, by eliminating diversity of exploration strategies, would likely reduce and delay the discovery of oil and gas on the OCS.

If separation is obtained through formal governmental review and approval of lease development, the costs would be some additional delay in getting production from the OCS. This delay would result from the governmental review process itself, which might be similar to the current environmental impact statement process.

Another result of a governmental review process would be some reduction in bonus bids. This would reflect delays that the system itself would impose on lease development. In addition, bonus reductions would reflect the possibility that in certain cases, if this system could be adopted, lessees would not be allowed to develop immediately deposits which they might be otherwise prepared to develop ^{at} once. Such bonus bid reductions would themselves be reflections of reduced fair market value under a separation system.

Current OCS legislation provides authority for government geological and geophysical explorations on the OCS. However, a large-scale government exploration program would require substantial new funding, and it would be a very significant departure from past leasing practice under section 11 of the OCS Act. Whether this could be done under existing statutes would depend on whether the exploration could be included within the geological and geophysical exploration authorized under section 11 of the OCS Act.

On the other hand, separation of exploration and development as envisioned in the EIS is not possible under current legislative authority. This is true because current authority provides no powers to deny a lessee's right to develop a lease. However, there are proposed regulations being developed in the Department which will modify the development plan approval process to allow States to comment upon development plans. While granting a State a right to review development plans can never result in a denial of development rights, it will provide a greater opportunity for the State to make its views known to Interior in the latter's determination of appropriate conditions to be imposed on development plans and in the formulation of regulations and OCS orders to protect the environment.

This section of the PDOD presents a few additional policy issues which are not expected to have environmental impacts by themselves, and which need not necessarily be decided at this time. The issues, however, are significant, and at least one, G & G data disclosure, represents a pending decision. The issues are information policy, including G & G data disclosure and stratigraphic drilling, alternative bidding systems, and State inspection rights.

A. Information Policy

Information is desired by both the government and potential lease bidders, in order to assess the value of OCS resources. In addition, information is desired by lease owners in order to develop efficient exploration and development strategies. There are steps which can be taken to increase information available to the government, potential lease bidders, and lease owners. Two such steps are considered here. These are geological and geophysical (g & g) data disclosure regulations and pre-sale stratigraphic or exploratory drilling.

(1) G & G Data Disclosure. At the present time, geophysical data acquired under permit is proprietary information which companies are not required to divulge. Geological information is required to be submitted to USGS, but this data is never made public by USGS.

A proposed change in data disclosure regulations is now being considered in the Department. The new regulations would make geophysical data available to the government upon request. Such data could subsequently be made available publicly after ten years. Geological data would be submitted to the government as it is now, but this data could be made public in 6 months under the proposed new regulations. These new regulations would only affect leases sold after their date of implementation.

One basic objective for data disclosure policy is to produce correct incentives for data gathering. This objective is enormously complicated in the case of the OCS because data usually is relevant both to owned and un-owned property. Where property is not owned, it is nearly impossible to develop correct information gathering incentives.

There are four situations in which an incentive to gather data may exist for the owner of an OCS lease. Incentives in each situation may be affected differently by a data disclosure policy. The following are the four situations:

(1) Data is valuable to the lease owner in the exploration and development of his own property. The lease owner therefore has an incentive to gather that data.

A data disclosure policy cannot affect this incentive. Since the benefits of data gathering in this situation belong only to the owner of the property, an appropriate incentive for data gathering will exist regardless of disclosure regulations.

(2) Data is valuable to a second lease owner (or many other lease owners) in exploration and development of their property. The second lease owner may provide an incentive for data gathering by offering to pay the first lease owner some amount for this data.

The incentive for data gathering in this case depends upon whether or not the first and second lease owners can conclude a bargain. Data disclosure policy can affect the situation by changing the costs of concluding an agreement. However, it is not clear whether costs

would on balance be increased or decreased, resulting in a loss or a gain, respectively, from the data disclosure policy.

Since it is possible for the second lease owner to be a "free rider," obtaining information for nothing by waiting for disclosure, negotiating costs may be increased under data disclosure. For example, the second lease owner may be recalcitrant about concluding an agreement, while the first lease owner may be unwilling (or unable) to gather data unless the second is committed to pay his "fair share" of the costs. The costs of striking a bargain could be quite high under these circumstances.

On the other hand, there are cases where data disclosure would effectively eliminate negotiating costs. For example, data may be gathered by the first lease owner as an incidental result of his own exploration activities. If this data has only a little value to the second lease owner, under the present system the two owners would never incur the negotiating costs of an exchange of the information. Under data disclosure, however, the information is made available to the second lease owner with no negotiating costs to anyone.

It appears, therefore, that overall negotiating costs could either go up or down under data disclosure.

(3) Data is valuable because it provides a competitive advantage in bidding for a tract which is to be leased in the future. Thus, there is an incentive for the leaseowner to gather this data.

This is an undesirable incentive from society's point of view. Information such as this only determines how much is paid for a piece of property. Thus, it contributes nothing to the value of final goods and services in the economy.

The incentive to develop this kind of information is eliminated under data disclosure. This is true because data which provides a competitive advantage ceases to provide such an advantage if it is available to everyone.

(4) Data would be valuable in the exploration and development of a tract which is to be leased in the future. Some incentive exists to gather such data now, if possession of the data provides some additional advantage in future bidding for the unowned lease.

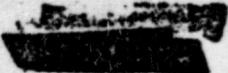
Under data disclosure, any incentive to gather such information would be eliminated. Unless the government, the present lease owner, arranges to pay for such information gathering directly, this information would not be produced under data disclosure.

In addition to the basic disclosure policy objective of producing correct incentives, there are two secondary objectives. One is to increase data available to the government for use in assessing the extent and value of OCS resources. The other is to equalize information available to all lease bidders so that sales will be more competitive, which should increase returns to the public and tend to increase new entry to the offshore oil industry.

Given these objectives, we can make the following observations about the old versus the new proposed data disclosure rules:

1. New regulation: public release of geophysical data after 10 years, immediate availability upon request to USGS.
 - (a) Long delay in public release substantially preserves incentives for gathering such data.
 - (b) Makes data available for government resource evaluations.
 - (c) Does not make data much more available to potential bidders, due to long delay for public release. However, this is not judged to be serious since this kind of data is readily available and relatively inexpensive to purchase.
2. New regulation: public release of geologic data after 6 months.
 - (a) May increase or reduce bargaining costs and increase or reduce desired information exchanges between lease owners.
 - (b) Will substantially reduce the undesirable incentive to gather data to place values on un-leased tracts.
 - (c) Will substantially reduce the desirable incentive to gather data useful in exploration and development of un-leased tracts.
 - (d) Will likely make data much more available to potential bidders. Geological data is usually difficult to purchase at any price.

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 (2) Stratigraphic Drilling. At present, the Department allows companies or groups of companies to apply for permits to drill off-structure stratigraphic tests prior to OCS lease sales. The information from such tests is provided to the government free, is available to initial group members for equal shares of the costs, and is subsequently available to anyone else not in the initial group for the average cost plus a penalty.

In the past, an environmental analysis has been written for each off-structure stratigraphic test. This analysis has reached the conclusion that no environmental impact statement (EIS) is required for off-structure tests. It is possible, of course, that this position may be challenged in the future. If there is a challenge and it is successful, the costs of pre-sale stratigraphic testing will be substantially increased due to the direct costs and delay costs of writing an EIS.

A stratigraphic test drilled prior to a lease sale provides better information with which to estimate the value of the resources contained in the sale. In this way, the risks of purchasing OCS leases are reduced. In addition, the better information from stratigraphic drilling may result in a different set of tracts being sold, and an improved exploration strategy being followed.

Balancing these benefits of stratigraphic drilling are the costs of such drilling. If stratigraphic holes are drilled off-structure, then these holes are additional to those that would be drilled later in actual exploration.

The cost is simply the drilling cost. On the other hand, if stratigraphic holes are drilled on-structure where holes would be drilled anyway after the lease sale, then there are no additional holes drilled, and essentially no net costs for the drilling program. Both on-structure and off-structure drilling produce substantially the same information regarding the sale area.

If on-structure pre-lease drilling has essentially no net cost, then there is a clear advantage to on-structure drilling. However, on-structure drilling has a higher probability of striking oil than off-structure drilling. Therefore, even though all applicable drilling precautions are taken for on-structure drilling, there would still be a greater potential for environmental impacts. This means that there is an even higher probability that an EIS would be required for an on-structure drilling program.

If there is to be a pre-lease drilling program, on-structure or off-structure, there is a fundamental question about whether private companies or the government should sponsor the program. The real question is who should be better able to decide the appropriate amount and location of pre-lease drilling.

On the one hand, there is some reason to believe companies should be better able to formulate appropriate pre-lease drilling strategies. The companies could be expected to have a better idea of where drilling will occur after the sale, and therefore they could locate pre-sale holes most advantageously. In the particular case where holes are drilled on-structure, companies would be able to better identify where holes would be drilled anyway after the lease sale.

On the other hand, the incentive for companies to drill pre-sale holes are probably not correct. Any activity such as pre-lease drilling which increases the value of the OCS resources, will mostly benefit the seller of these resources. Thus, much of the benefit of pre-lease drilling is not captured by companies doing the drilling, but instead accrues to the government in the form of higher bids for leases. It is not clear whether this improper incentive cancels or more than cancels the other advantage which private companies have in selecting drilling locations.

Legislation authority for government sponsored pre-sale drilling already exists. However, if such a program were to be implemented, it would be necessary to get authorization for such a program. Thus, this kind of program probably could not begin until fiscal year 1977.

B. Alternative Bidding Systems

Under current legislative authority, OCS leases may be sold for the highest cash bonus bid, with a fixed royalty rate no lower than 12.5 percent, or leases may be sold for the highest royalty rate bid with the amount of any initial cash bonus fixed. In effect, therefore, three bidding systems are possible.

- (1) - Current system. Cash bonus bidding with 16 2/3 percent fixed royalty rate.
- (2) - High royalty system. Cash bonus bidding with royalty rate fixed at 20 to 40 percent, depending on reserves and cost estimates.
- (3) - Royalty bidding system. Royalty rate bidding with cash bonus fixed at 0 to 10 million dollars, depending on reserves and cost estimates.

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In relation to the current system, raising the royalty rate or using royalty bidding makes an increasing proportion of total lease payments contingent upon eventual lease production. This is desirable since it reduces front end lease costs and risks by deferring lease payments and making such payments contingent upon successful lease development. Reducing front-end costs and risks can be expected to encourage new entry into the offshore oil industry. For example, the royalty bidding experiment in October 1974 indicated that participation by new companies and smaller companies is substantially increased when front-end costs and risks are reduced.

On the other hand, making a greater proportion of lease payments contingent has undesirable implications. When downstream lease payments are increased, there is a higher probability that leasees will not produce even though production revenues are anticipated to be in excess of real production costs. The transfer of revenues to the government in effect raises the costs of production and can preclude development on otherwise economic leases.

If front-end costs and development risks are not judged to be a major problem in OCS leasing, then it is reasonable to choose to continue leasing under the current system. This will result in more OCS production achieved sooner than if one of the other bidding systems is chosen.

If front-end lease costs and risks are judged to be a major problem, justifying some sacrifice of potential OCS production as a corrective measure, then one of the other two bidding systems could be selected. Depending on whether high fixed royalties or royalty bidding is selected, the levels of the royalty or of the fixed initial cash bonus need to be

chosen with care. They should be chosen, for particular leasing areas or even particular leases, in such a way that contingent lease payments are never a large enough fraction of total payments to unduly jeopardize production. The information required to make such a choice is the same whether high fixed royalties or fixed initial bonuses are being set.

V. Summary and Checklist of the Options

The above sections have discussed accelerated leasing in the general context of our national energy situation, presented the specific proposal to accelerate leasing, presented alternatives to the proposal, and presented some additional policy issues which may be considered in connection with the accelerated leasing proposal.

The specific accelerated leasing proposal is defined as follows:

The action is a proposed program to accelerate Outer Continental Shelf (OCS) oil and gas leasing by the Federal Government in calendar year 1975 and succeeding years. This acceleration would occur nationwide according to a revised proposed OCS planning schedule of six proposed lease sales for 1975 and six possible lease sales per year for the period 1976-1978, including some or all frontier areas by the end of 1978.

The revised proposed schedule is presented in Figure 1. A final Environmental Impact Statement which considers this proposal was published in July 1975.

The Secretary may choose to adopt the accelerated leasing proposal or he may choose not to adopt the proposal:

- _____ Option 1: Adopt the accelerated leasing proposal.
- _____ Option 2: Do not adopt the accelerated leasing proposal.

The Secretary may also choose to pursue one or more of the alternatives to the proposal. Pursuit of another alternative may consist of an instruction to appropriate offices and/or agencies in the Department of the Interior to study the alternative and recommend a proposed action for the Secretary's decision. The alternatives which could be pursued are as follows:

- _____ Option 3: Postpone an accelerated leasing decision while waiting for a National Energy Plan to be formulated.
- _____ Option 4: Slow the rate of leasing that is currently implied in the proposed action above.
- _____ Option 5: Do not accelerate leasing and make efforts to promote energy conservation.
- _____ Option 6: Do not accelerate leasing and make efforts to promote use of alternative fuels.
- _____ Option 7: Change the order (and rate) of leasing from that implied in the proposed action above.
- _____ Option 8: Adopt proposed regulations providing for State review of development plans.

Finally, there are a number of policy issues raised in Section IV which the Secretary could decide at this time if he chooses to do so. These issues and the implied options are as follows:

Data Disclosure

- _____ Option 9: Adopt proposed new data disclosure regulations.
- _____ Option 10: Do not adopt proposed new data disclosure regulations.

Stratigraphic Drilling

- _____ Option 11: Continue with the present stratigraphic drilling program.
- _____ Option 12: Move toward a policy of government-sponsored off-structure or on-structure stratigraphic drilling.

Alternative Bidding

- _____ Option 13: Maintain the current bonus bidding system with $16 \frac{2}{3}$ percent royalty.
- _____ Option 14: Raise the royalty rate to 20-40 percent.
- _____ Option 15: Adopt royalty bidding with a fixed bonus amount.

Footnotes

- 1/ Programmatic EIS, Vol. 2, p. 283.
- 2/ See Project Independence, Oil Task Force Report, p. IV-4. At \$7 oil prices, production from the OCS excluding Alaska in 1985 is estimated at 4 mbd. Adding in "South Alaska including offshore" (Region 1), brings the total to 4.8 mbd. Current Federal OCS production is about 1.2 mbd.
- 3/ "Evaluation of OCS Areas by the Net Financial Benefits and Environmental Costs of Development" Office of Minerals Policy Development, October 1974.
- 4/ Programmatic EIS, Vol. 2, p. 47.
- 5/ In mid-1974, about 1/3 of crude imports went to the Atlantic Coast, 1/4 to the Gulf area, and 1/4 to the Pacific Coast. See Bureau of Mines, "Crude Petroleum, Petroleum Products and Natural Gas Liquids," June 1974, pp. 16-17.
- 6/ See Geological Survey Circular 725, "Geological Estimates of Undiscovered Recoverable Oil and Gas Resources in the United States."

Table 111

ESTIMATES OF AVERAGE ANNUAL OIL SPILL VOLUMES BASED ON THROUGHPUT SPILL RATES
(Over the Life of the Field)

Areas	Average Annual Production (Million Barrels)		Throughput Spill Rate Percent (Table 109)	Average Annual Spillage (Barrels)	
	Mean	5%		Mean	5%
North Atlantic	45.00	71.43	.0089	4005	6357
Mid-Atlantic	72.00	131.42	.0089	6408	11,696
South Atlantic	20.00	43.33	.0089	1780	3856
MAFLA	50.00	77.14	.0089	4450	6865
MAFLA Deep	(25.00)	(43.33)	.0232	(5800)	(10,053)
Central Gulf & South Texas	126.67	160.00	.0089	11,273	14,240
DEEP	(36.00)	(54.29)	.0232	(8352)	(12,595)
So. California	44.00	60.00	.0089	3916	5340
DEEP	(48.00)	(82.86)	.0232	(11,136)	(19,224)
Santa Barbara	60.00	85.71	.0089	5340	7628
DEEP	(36.00)	(60.00)	.0232	(8352)	(13,920)
No. California	26.67	26.67	.0089	2374	2374
Washington-Oregon	13.33	23.33	.0089	1186	2076
Cook Inlet	48.00	68.57	.0249	11,952	17,074
Gulf of Alaska	60.00	134.29	.0249	14,940	33,438
Aleutian Shelf	6.67	3.00	.0249	1561	1992
Bristol Bay	35.00	68.57	.0249	8715	17,074
Bering Sea	88.00	175.00	.0249	21,912	43,575
Chukchi Sea	213.33	362.50	.0249	53,120	90,263
Beaufort Sea	110.00	190.00	.0249	27,390	47,310

Explanation for Table 111

The explanation for Table 110 expressed the necessary caveats about the use of throughput spill rates in forecasting future OCS oil spills. Table 111 presents estimates of annual throughput spill volumes. These estimates are obtained by multiplying the USGS estimates of undiscovered recoverable resources by the throughput spill rate appropriate for each particular OCS area.

Inspection of the column headed Throughput Spill Rate (Percent) reveals that each of the OCS areas is assigned an appropriate total throughput spill rate. This was done by noting whether or not tanker or tank barges would be used to transport OCS petroleum production to shore. Additionally, it was necessary to identify whether the petroleum production of each OCS area would likely be consumed in that region or exported by tanker for consumption in another region. The following assumptions were used to specify whether pipelines only, tankers only, or pipelines and tankers would be used in transporting the OCS petroleum production of each area:

- (1) For all deepwater areas, i.e. 200 meters to 2500 meters, tankers will be necessary to transport the oil to shore;
- (2) All Alaskan OCS petroleum production will be pipelined to shore for storage then tankered out of Alaska for refining and consumption in other areas; and

EXPLANATION FOR TABLE 111 (cont')

(3) Oil production of all other OCS areas will be piped to shore and consumed in the adjacent coastal area.

The U.S. Geological Survey was the source of these assumptions. Because of the substantially higher throughput spill rates for tanker transportation as compared to pipeline transportation, these are very important assumptions. The potential for an error in these assumptions must be added to the other caveats, which were noted in the explanation for Tables 109 and 110 about the use of throughput spill rates and recoverable resource estimates as a basis for forecasting future OCS oil spill rates. When all of the assumptions necessary for the validity of throughput spill rates are considered it is highly doubtful that there is much if any meaning in these estimates. Certainly the absolute amounts of annual oil spilled should not be interpreted as having anywhere near the precision implied. This apparent numerical precision is an artifact produced when the two numbers are multiplied together. A far more reasonable interpretation of these throughput spill volumes is obtained by grouping the estimated volumes into categories such as high, moderately high, moderate, and low. The results of such a categorization are:

<u>High</u>	53,120 barrels/year Chukchi Sea
	27,390 barrels/year Beaufort Sea
	21,912 barrels/year Bering Sea
	19,697 barrels/year Central and Western Gulf of Mexico shallow and deep

3148



PROGRAM DECISION OPTION DOCUMENT

SALE #40 MID-ATLANTIC OCS

PDOD Sale #40
Mid-Atlantic OCS

3149

I. Introduction

The OCS Lands Act (43 USC 1337) grants to the Secretary of the Interior authority to issue leases for minerals on the U.S. Outer Continental Shelf. Since offshore leasing began in 1954, 2815 tracts have been leased (approximately 13 million acres or 5.3 million hectares). Active leases cover about 9 million acres (3.6 million hectares) in the Gulf of Mexico, offshore Southern California and the Gulf of Alaska.

In 1975 domestic oil production was 3.0 billion barrels, gas production was 20 trillion cubic feet. OCS lands produced approximately 17% of domestic oil (500 million barrels) and 20% of domestic gas (4 trillion cubic feet).

There has been no OCS lease sale in the Atlantic OCS. This proposed sale would be the first of six sales planned for the area within the next 2 years. In the works are a sale in the North Atlantic in early 1977, a sale in the South Atlantic in early 1977 and a second sale in each of the Atlantic areas by 1978. This proposal is to offer for lease 154 tracts for oil and gas exploration and development a total of 876,750 acres (354,216 hectares). The U.S. Geological Survey estimates that this area could contain 400 million to 1.4 billion barrels of oil and 2.6 trillion to 9.4 trillion cubic feet of gas. However, because these 154 tracts are located in a frontier area which has experienced no exploration by actual drilling or development, there is no assurance that petroleum in marketable quantities or any petroleum at all, will be found. The extent of resources that may exist will not be precisely known for many years.

II. Background for the Decision

Domestic production of petroleum peaked in 1970 at a rate of 9.6 million barrels per day (mbd). Since that time production has declined to 8.4 mbd in 1975 and 8.2 mbd for the first four months of 1976. Petroleum consumption, on the other hand, has continued to increase and imports have risen from 4.8 mbd in 1972 to 6.0 mbd in 1975 and 6.9 mbd estimated for the first five months of 1976. Through 1985, imports could rise to 13.5 mbd under continued low price regulation (\$8.00/bbl) or at least remain at about the current record levels with price decontrols and continuation of current world oil prices. These forecasts were shown in FEA's newly revised 1976 National Energy Outlook. The report also indicates that by 1990 (the peak year of the potential Mid-Atlantic offshore production), imports could increase beyond 1985 levels as domestic production from older fields again declines. Reliance on oil imports has grown to where imports now account for 50 percent of U.S. consumption, versus only 20 percent in 1967. In describing its 10.4 billion budget for Fiscal Year 1977 programs, designed to eliminate the nation's vulnerability to another future oil embargo, the White House reported that oil imports were now costing the U.S. about \$27 billion annually versus only \$3 billion as recently as 1973.

Additional analysis is presented in Appendix A at the end of this report.

III. Description of the Proposal

A. General Description

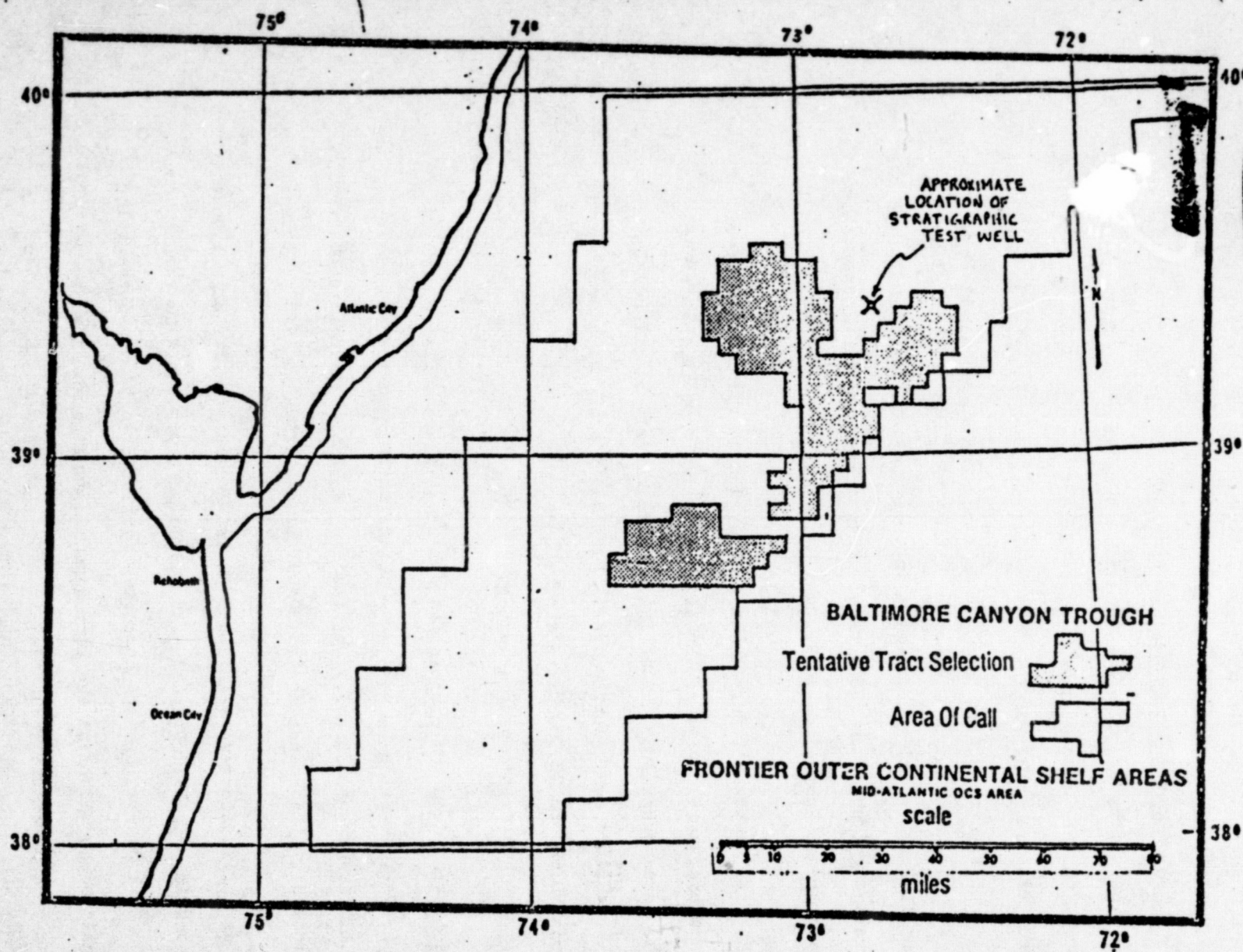
Proposed OCS Lease Sale No. 40 consists of 154 tracts covering 354,816 hectares (876,750 acres) off the coast of New Jersey and Delaware. The location of these tracts in relation to the coastline of the two States is shown on the attached map (next page.)

The 154 tracts being considered in this proposal lie in water depths averaging from 40 to 185 meters. Distances from the closest shore point range from 47 to 92 statute miles.

The U.S. Geological Survey has estimated that the undiscovered recoverable resources of the 154 tracts included in the proposed sale area range from 0.4 to 1.4 billion barrels of oil and 2.6 to 9.4 trillion cubic feet of gas. Peak daily production would range from 90,000 to 320,00 barrels of oil per day and from 0.85 to 3 billion cubic feet of gas per day.

Production from the proposed sale would replace a like amount of imports. In years of peak production, savings on the annual import bill for oil would be \$1.5 billion (using FEA's assumption that oil imports will continue at \$13.00/bbl landed price in 1976 dollars.)

A stratigraphic test well has been drilled outside the sale area to approximately 16,000 feet. (At approximately point X on the map on the next page). Results have been submitted to USGS and are being analyzed to determine the stratigraphic configuration at the well site and to hypothesize about the existent strata in the sale area.



B. Economic Analysis for Sale

The developmental activity expected to follow as a result of the proposed sale is summarized in Table 2, for both the low and high USGS resource estimate levels. Corresponding estimates of total capital investment required range from \$850 million to \$3.3 billion. These estimates were derived from cost data supplied by USGS and the Atlantic Offshore Operators Committee. They exclude lease acquisition costs and are summarized in Table 3. Table 1, below, provides low and high case time table development.

Table 1 - Low and High Case Time Table Development

Low Case 400 Mil. BBL Oil and 2.6 Tril. Cu. Ft. Gas

	<u>Devel. Rigs</u>	<u>Wells</u>	<u>Platforms</u>	<u>Oil</u>	<u>Gas</u>
1979	2 per year	10 total	0 total	0	0
1981	3	35	2	5,000/day	15 mil/day
1983	5	75	5	20,000	80
1985	4	120	7	45,000	300
1989 (peak)	3	190	10	90,000	850

High Case 1.4 Bil. BBL and 9.4 Tric. Cu. Ft. Gas

	<u>Devel. Rigs</u>	<u>Wells</u>	<u>Platforms</u>	<u>Oil</u>	<u>Gas</u>
1979	8 per year	40 total	0	0	0
1981	18	190	8	25,000/day	40 mil/day
1983	20	380	20	85,000	240
1985	18	570	32	175,000	1,000
1989 (peak)	6	765	47	320,000	3,080
1992	1	800	50	275,000	1,400

3154

CREAGE, FACILITIES AND EQUIPMENT EXPECTED TO DEVELOP
HYDROCARBON RESOURCES WITHIN THE PROPOSED SALE AREA

Based on USGS
estimates for
this Proposed
Sale (25 Year
Field Life)¹

a. Acres proposed to be offered	876,750
b. Wells	
--exploratory	60-240
--producing	200-800
c. Rigs (maximum working at one time)	
--exploratory	5-20
--development	5-20
d. Platforms and Equipment	10-50
e. Offshore Pipeline (Miles)	100-450
f. Pipeline Terminal/Storage Facilities	1-2
g. Onshore Operations Bases	1-2
h. Gas Processing Plants (Units with capacity of 300 to 500 mmcf/d)	3-6
i. Tankers (if utilized)	(Contingent upon technological and economic considerations: unknown at this time.)

Note: Numbers of anticipated facilities are not necessarily proportional to the amount of estimated recoverable resources, because of differences in assumed development strategies and other assumptions.

¹Low Case: 0.4 billion barrels of oil and 2.6 trillion cu. ft. of gas.
High Case: 1.4 billion barrels of oil and 9.4 trillion cu. ft. of gas.

TABLE 3 - ESTIMATED INVESTMENT COSTS, MID-ATLANTIC SALE #40

FOR LOW CASE (1) AND HIGH CASE (2) (25 YEAR FIELD LIFE)

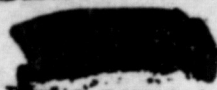
3155

<u>Capital Costs</u>	<u>Range of Facilities</u>	<u>Range of Investment (millions \$)</u>
Exploratory Wells Drilling @ \$3,000,000	60-240	180-720
Development Wells Drilling @ \$1,200,000	200-800	240-910
Platforms and Equipment (Pumps, separators, gathering lines, etc.) @ \$20,000,000	10-50	200-1,000
Large Dia. Offshore Pipeline @ \$1,000,000 (per mile)	100-450 (miles)	100-450
Pipeline Terminal/Storage Facilities @ \$4,000,000	1-2	4-8
Onshore Operations Facilities (Incl. Pollution Containment & Pick-up Equipment) @ \$2,800,000	1-2	2.8 - 5.6
Gas Processing Plants (Capacities: 300 mmcf - Low Case 100 mmcf - High Case) @ \$40,000,000	3-6	120-240
Service Support Equipment (Mud Suppliers, Logging, Welding, Wellhead Equipment, Cementing, Diving Service, Trucking & Rental Tool Co's.)	(Misc.)	5.2
Total		\$852 - 3338.8

Note: Numbers of anticipated facilities are not necessarily proportional to the amount of estimated recoverable resources, because of differences in assumed development strategies and other assumptions.

10.4 billion barrels of oil and 2.6 trillion cubic feet of gas.

21.4 billion barrels of oil and 9.4 trillion cubic feet of gas.

 Bonus payments for this proposed sale have been estimated at \$400 to \$600 million. Royalty payments over the entire producing period would total \$900 million to \$3.3 billion. The present value of these estimated royalty payments is \$230 to \$880 million.

Salaries for oil field workers are estimated to total \$212 million (low resource estimate) to \$613 million (high resource estimate) for years 1976 through 1999.

An analysis of the economic impact of the proposed sale and subsequent development on the Mid-Atlantic coastal region shows that the impacts will be relatively minor for the area as a whole. For example, changes of less than one percent were shown for most of the various measures of regional economic activity when comparing base case levels (without offshore development) and expected levels (with offshore development) for the years 1980, 1985, and 1990. Over the estimated life of the offshore fields (25 years) the greatest regional impacts were shown to occur in construction activity (+2.0 percent in 1980), private investment (+1.6 percent in 1980), and the balance of payments (-3.0 percent in 1990).

These results came from application of the Harris Multi-Regional Economic Forecasting Model, which provided constant dollar projections for each economic variable for base case level, with development, and differences for the above years.

In analyzing the economic impact of the proposed action, it was found that the impact for the region as a whole would be minimal. However, the impact on a locality could be significant. The more a local economy

is able to absorb the newly invested dollars, the greater will be the benefits that accrue to its population. For a given locality, though, particularly the least developed, the investment that could result from the proposed sale could represent a heavy shock to its economy in terms of its ability to absorb the increases of labor, capital and materials that may migrate to it. Even with planning, the possible initial rapid influx of labor, capital and materials into local economies could strain the economic base of the community. However, developers are not expected to commit resources to the construction of infrastructure until a knowledge of the level of the factors of production to be absorbed by the local economy becomes more certain. Because of this, it is not anticipated that the areas impacted, as a whole, will experience a boom/bust phenomenon.

Factors mitigating a larger potential impact of new OCS activity on the region include 1) the high level and variety of industrial development already existing within the region, 2) the fact that portions of rig crews, operations and service support personnel will be imported from other areas such as the Gulf of Mexico where offshore activity is already well developed, and 3) fabrication of required equipment such as platforms, pipelines and rigs most likely will be provided by established facilities outside of the region.

Regarding the economic impact of the proposed Mid-Atlantic development on the total U.S. economy, results from the Harris model were as expected--percentage changes were even smaller than the above results

for the region and for most economic measures, no essential differences were shown. Conclusions were drawn from comparisons of various economic projections for the U.S., with and without Mid-Atlantic OCS development assumptions.

Refer to Appendix B for a thorough economic description of this sale.

Appendix C presents an analysis of capital need and availability.

C. Oil Spill, Environmental and Conflicting Use Issues

The introduction of offshore petroleum exploration, development, and production activities will produce a variety of impacts to the Mid-Atlantic region. Specific issues fall into categories of (1) oil spills and (2) environment including multiple use conflicts.

1. Oil Spill Issues

The Mid-Atlantic OCS is relatively a harsh offshore operating environment, though a comparison with other operating areas worldwide indicates that wave and wind conditions are worse in the North Sea and the Gulf of Alaska. If an oil spill were to occur, containment devices may be inoperable between 10 percent (summer) and 30 percent (winter) of the year. The resources that could be affected (though the risk is not great as will be discussed below) by petroleum operations include beaches: Gateway National Recreation Area, Southern New Jersey beaches, Delaware beaches and Maryland beaches; wetlands; fin fish: scup, porgy menhaden, weak fish, sea trout, whiting and striped bass; shell fish:

surf clam, bay scallops, hard clams and oysters; water birds and endangered birds: American peregrine falcon, southern bald eagle and osprey. A thorough treatment of these resources is presented in the EIS, Volume 2.

3159

The OCS Risk Analysis

In an attempt to predict what would happen to an oil spill, the OCS risk analysis was performed. The analysis provides a method for analyzing the probability of occurrence of an OCS-related oil spill and the probability that it will impact nearshore or onshore resources. In attempting to keep the risk analysis as simple as possible, spreading and weathering effects of oil spills were not included. Other limitations are: a) does not consider the actual effects on resources; b) does not consider the relative importance of the different resource values; and c) does not consider the reduction in accident rate effected by recent and future technological developments.

3160 31

predicts that during the 25-year production life of the sale area four or five spills could occur. However, the chances of a spill impacting a critical resource are so low that there is less than a 50% chance that any one critical wildlife or recreational resource will be impacted by a spill during the life of the field. Using hypothetical spills, the model predicted that it will take a spill in the order to 30-35 days to reach shore. The "worst case" was four days. This and the fact that oil weathers and evaporates at sea mean that the severity of any impacts will be less than implied by the failure of the analysis to account for weathering.

For decision-making purposes, the model indicates that the area, in total, is far enough from shore that none of it presents a high hazard to the environment. Withdrawal of tracts to reduce risk would not be justified. Thus there are no proposed deletion suboptions based on the results of the oil spill trajectory model. Although an oil spill may not reach shore from the proposed lease area, a spill from another source e.g., a pipeline break, could result in an onshore impact. Impacts on nearshore and onshore biological systems are more likely from spills emanating from pipeline or tanker transport of oil than from platforms located in the proposed area. Containment and cleanup technology is improving, but current methods are ineffective in seas greater than six feet. Normally, during winter, wave heights of 4 feet occur 50% of the time; during summer, waves of 2 feet occur 50% of the time. These relatively low wave heights do not, of course, eliminate the possibility of occasional higher waves.

2. Environmental Issues Including Multiple Use Conflicts

3161

As mentioned, the Mid-Atlantic is a harsh operating environment, but not unduly difficult. Seismologically, there appears to be only slight earthquake risk. The stratigraphic test well encountered no geologic hazards. Thus, weather and geology do not appear to be significant issues in this sale.

Shipping

Portions of five proposed blocks lie in the recommended traffic separation lane into New York Harbor. The Coast Guard has requested that no structures be placed in the recommended lane. The Geological Survey states that if drilling is prohibited in this lane, all drilling access to Blocks (NJ 18-3) 554 and 599 would be eliminated. Since the traffic lane is presently only a recommendation, it could be moved during the exploratory phase and either displaced permanently or returned to its original position depending on the results of exploration.

Alternatively, if there is a discovery on any blocks within recommended traffic lanes, the Oil and Gas Supervisor could require that an operator install equipment on a platform to qualify the platform as a permanent aid to navigation as defined by the Coast Guard.

Fishing Interests

Conflicts with the fishing industry would result primarily from the removal of fishing grounds by platform placement and bottom obstructions which could damage fishing gear, or oil spills which could reduce the quantity or quality of fish catch. It is estimated that a maximum of 810 to 3240 acres could be removed from fishing at any time during the

exploration phase, leveling off to a maximum of 250 acres during production operations. Because there are no total catch data available for the Mid-Atlantic on a specific area basis, the impacts on fish populations resulting from oil and gas development are not quantifiable at this time. It is unlikely that sport fishing will be affected at all from activity associated with the proposed sale. Since the majority of all sports fishing takes place nearshore, the only enhancement afforded by platforms as artificial reefs will occur to the very small segment of the population which fishes for large game fish at the edge of the Continental Shelf or at submarine canyon heads.

Onshore Development

Uncontrolled growth, resulting from onshore petroleum support facilities that would conflict with present land usage or cause an overloading of community services, is a major concern to the Mid-Atlantic states. Particular emphasis has been placed by the states on impacts to recreation areas from offshore development. Additionally, the affected states feel that their capability to plan for future petroleum facilities siting is inadequate.

Although the states are presently developing Coastal Zone Management (CZM) plans and local governments can control the placement of onshore support facilities, by zoning and issuance of permits, no uniform means presently exist to coordinate these activities. For this sale, a special stipulation requires a lessee or operator to submit to affected states an information

plan which describes onshore activities which might take place in support of exploration activities. This stipulation was initially developed for the Gulf of Alaska sale and its use has been adopted for the Mid-Atlantic. A copy of the stipulation is presented in Appendix D, stipulation 9.

A revision to 30 CFR 250.34 requires operators to submit their development plans and information on all proposed offshore and onshore facilities and operations connected with the development plan to affected states for review and comment. Additionally, Department efforts to coordinate with and inform states about leasing activities, efforts of NOAA's CZM program, and the two to seven years anticipated until initial production, should provide the states and their local governments with sufficient time to implement mechanisms to respond to the anticipated activity.

Pipelines

Besides the special stipulations that will require companies to submit to the states exploration and development plans, two other special stipulations are designed to mitigate the controversial issues of oil shipping and pipeline burial. The first of these is to minimize the transport of oil via tankers and barges. The second is a stipulation preserving the Bureau's right to require pipelines be placed in designated corridors. See Appendix D, numbers 4, 5, and 6 for these stipulation texts.

Recreation

Oil spills from pipelines or tankers could cause significant impacts to coastal areas which derive their income from tourism/recreation, such as beach side communities of New Jersey, Delaware, Maryland and Virginia. Greatest effects would occur due to spills landing ashore in the high intensity recreation season between Memorial and Labor Days. A spill on a beach will reduce tourism and recreational uses, lower revenues to local business, and possibly increase use of nearby beaches which have not been impacted. Hunting of waterfowl might be reduced by a spill in a wetland area in the fall-peak migration period.

OCS Orders provide a direct means to prevent spillage and clean them up if they occur, but no means short of legal action exist to compensate individuals, small businesses, or communities for the impact of a spill.

See Option 3, pp. 17-19 for a discussion of other mitigating possibilities.

IV. Options For Decision

The Secretary is presented with four broad alternatives for proposed OCS Sale No. 40. He may choose to proceed with the sale as proposed, cancel or delay the sale for an indefinite period, postpone the sale for a specified time period, or modify the sale.

Option 1: Proceed with Sale as Proposed

If a decision is made to proceed with OCS Sale No. 40 as proposed, bonus receipts of \$400 to \$600 million and resource recovery of 0.4 to 1.4 billion barrels of oil and 2.6 to 9.4 trillion cubic feet of gas can be expected. Consequences of proceeding with the sale include potential damage from oil spills and chronic discharges, commitment of land to onshore facilities and pipelines, induced socio-economic impacts, interference to shipping and fishing interests, and an irreversible and irretrievable commitment of the oil and gas resources.

Option 2: Cancellation or Indefinite Delay of Sale

The only means of removing all environmental risks of onshore developments associated with exploring for, developing, and producing oil and gas from the Mid-Atlantic OCS is to cancel or indefinitely delay this sale. Resources foregone would be 0.4 to 1.4 billion barrels of oil and 2.6 to 9.4 trillion cubic feet of gas. Oil imports would not be replaced by OCS production. There are significant costs associated with continued imports in terms of balance of payments, energy dependence and oil spill risks associated with tankers. Estimated bonus loss connected with cancelling or indefinitely delaying the proposed sale would be \$400 to \$600 million.

31-66
Option 3: Postponement of Sale for Specific Time Period

~~September 1977~~ could be postponed temporarily to allow additional time for completion of baseline and other environmental studies, implementation of coastal zone management plans for Mid-Atlantic states, etc. Costs of delaying the sale for one year could result in losses to the Government of \$40 to \$60 million.

Pending Completion of Baseline and Other Environmental Studies

The proposed sale could be delayed for a period of a few months to several years pending completion of various stages of environmental baseline data gathering and analysis. However, a better approach to solving this problem would be to complete baseline and special studies simultaneously with exploration activities. Results of these studies would be used in development and/or modification of OCS Orders and issuance of Notices to Lessees and Operators to provide additional assurance that the environment will not be significantly impacted.

Pending Implementation of Coastal Zone Management Plans

Coastal Zone Management plans should be implemented by Mid-Atlantic states by November 1977; and for those states (New Jersey and Delaware) in closest proximity to the proposed lease area, plans should be implemented by July 1977.

Permanent onshore operations bases are not anticipated to be constructed prior to 1979. Investments in other new onshore facilities (e.g., gas processing plants, pipelines and terminals) will not be made until their necessity is proven. In addition, the size and locations necessary

and participants to be included in these ventures cannot be determined prior to the time when initial reserves are proved, which would take at least three years from the time of a lease sale. Therefore, most onshore activity will not commence until the States' coastal zone management plans are implemented and, thus there appears to be no real need for delay of this sale.

Some activities onshore can be expected to commence prior to the implementation of CZM plans. Support activities during the exploration phase will be required, but prior to construction of a permanent base or bases, such support is expected to operate temporarily out of existing port areas and facilities.

Pending Enactment of Legislation to Provide States With
OCS Revenue Sharing and/or Compensation Funding

The proposed OCS Lease Sale No. 40 could be delayed until legislation has been enacted to provide a revenue sharing and/or a guaranteed loan or grant program to coastal States for financial assistance with their planning activities and compensation for public amenities expenses directly related to OCS onshore activities or facility siting requirements.

Such funding assistance could minimize financial burdens of the coastal States and localities regarding expeditious land use planning requirements related to onshore OCS-related facility siting, as well as financial burdens suddenly encountered in their furnishing any

required supporting services and increased infrastructure costs (such as utilities, sewers, housing, police and fire support, and so forth). The concept of the need for this type of funding support has been recognized, and it is felt that such financial assistance is possible and attainable in a manner appropriate to mitigate the impacts that would be encountered by the coastal States. However, the Department has expressed and continues to express its belief that such funding must come from Congress. Proceeding with this proposed sale would not preclude Congress from approving a revenue sharing and/or a compensation fund.

Pending Enactment of Legislation to Establish
An Oil Spill Liability Fund

The proposed OCS Lease Sale No. 40 could be delayed until the enactment of an oil spill liability fund that would assure compensation for environmental and economic damage and losses from OCS-related oil spills that could impact the coastal zone.

A no-fault oil spill liability fund could compensate States, counties, localities, and private businesses for the environmental and economic losses that might result from damage to beaches, wetlands, and wildlife/fisheries resources, and would take care of clean up costs and rehabilitation and restoration, as well as any losses to businesses or livelihoods, no matter the origin of the OCS spill. However, such funding must come from Congress and proceeding with this proposed sale would not preclude Congress from approving such a fund.

Option 4: Modify the Sale

To reduce the magnitude of the potential environmental onshore and offshore impacts, the Secretary could reduce the size of the sale by deleting certain groups of tracts. An examination of the proximity analysis (Section III. E-G) of the Final EIS reveals that, because of their distance from shore, no tracts fall into the "high hazard potential" category (though all the tracts have a "high potential for disturbance" to fishing and shipping activities.) The oil spill risk analysis model does indicate that withdrawal of the northwestern-most group of tracts would reduce environmental risk. However, the risk of the entire sale area is so low that withdrawal of tracts to reduce the potential for oil spill risk offers very little additional environmental protection.

3170

BACKGROUND FOR THE DECISION

Domestic production of petroleum peaked in 1970 at a rate of 9.6 million barrels per day (mbd).¹ Since that time production has declined to 8.4 mbd in 1975 and 8.2 mbd for the first four months of 1976. Petroleum consumption,² on the other hand, has continued to increase and imports³ have risen from 4.8 mbd in 1972 to 6.0 mbd in 1975 and 6.9 mbd estimated for five months of 1976. Through 1985, imports could rise to 13.5 mbd under continued low price regulation (\$8.00/bbl) or at least remain at about the current record levels with price decontrols and continuation of current world oil prices. These forecasts were shown in FEA's newly revised 1976 National Energy Outlook. The report also indicates that by 1990 (the peak year of the potential Mid-Atlantic offshore production), imports could increase beyond 1985 levels as domestic production from older fields again declines. Reliance on oil imports has grown to where imports now account for 50 percent of U.S. consumption, versus only 20 percent in 1967. In describing its \$10.4 billion budget for Fiscal Year 1977 programs designed to eliminate the nation's vulnerability to another future oil embargo, the White House reported that oil imports were now costing the U.S. about \$27 billion annually versus only \$3 billion as recently as 1973.

¹Crude Oil and Lease Condensate

²Crude Oil, Lease Condensate and Natural Gas Liquids

³Includes Lease Condensate and Refined Products

During the 1973 Mideast War, the Arab oil producers imposed an embargo on shipments of oil to the U.S. and certain other countries. This occurrence demonstrated the vulnerability of the U.S. to severe supply disruptions and high oil prices. According to FEA estimates, the embargo cost \$16 to \$44 billion (1974 dollars) in terms of GNP loss alone. According to a study by the Interstate Oil Compact Commission, a 1977 embargo could result in a GNP loss of \$39 to \$56 billion and added unemployment of 1 to 1.5 million.

During and after the Arab oil embargo, the OPEC cartel rapidly raised the price of oil. The landed cost of Middle East crude has risen from \$6.37 per barrel at year-end 1973 to about \$13.00 at year-end 1975. Lately prices have been stabilized at around \$13.00 per barrel (in 1975 dollars). It appears almost certain that the days of \$6.00 oil are over. Events in the past two years have indicated an ability of the oil producing cartel to maintain high-level prices even in the face of substantial declines in world demand brought on by reduced rates of economic growth.

As a result of declining natural gas supplies from a peak in 1972, many gas distribution firms have been forced to deny service to new customers and to curtail supplies to some existing users. According to the Federal Power Commission, net firm gas curtailments

3172

supply to utilities during the 1974-1975 heating season (November to March), totalled one trillion cubic feet. For the recent heating season (1975-1976) firm curtailments are currently established by FPC at 1.3 trillion cubic feet. F.P.C. expects to report the final curtailment figures within a few weeks. The figures, as reported by interstate pipeline companies to F.P.C., represent contractual requirements by utilities less deliveries. Such deficiencies are the result of new gas supplies not being developed at a pace sufficient to maintain adequate reserves for current contractual obligations, let alone meeting the high level total demand. For the six years since April 1970, these shortages total 8.2 Tcf, as shown below:

NATURAL GAS CURTAILMENT TRENDS*

Year (April-March)	Annual Firm Curtailments (Tcf)	Heating Season (Nov.-Mar.) Firm Curtailments (Tcf)
1970/1971	0.1	0.1
1971/1972	0.5	0.2
1972/1973	1.1	0.5
1973/1974	1.6	0.6
1974/1975	2.0	1.0
1975/1976**	2.9	1.3

Source: Federal Power Commission

*Contractual requirements by utilities, less actual deliveries.

Pipeline-to-pipeline curtailments not included in 1974/1975 data.

**Estimated

FIRM GAS CURTAILMENTS BY STATE
(November, 1974 through March, 1975)

3173

<u>State</u>	<u>Curtailment</u> (000 cu ft)
Connecticut	4,483,173
Maine	0
Massachusetts	7,146,158
New Hampshire	144,081
Rhode Island	1,715,315
Vermont	0
New York	40,117,663
New Jersey	31,793,146
Delaware	1,852,946
Maryland	21,858,110
Pennsylvania	69,979,453
D.C.	0

Total 179.1 Bcf (billion cf ft.)

Source: Federal Power Commission

3174

states Northeast region, gas supply curtailments have had the most noticeable effect in the supply-demand imbalance.

For example, in the 1974-75 winter season, the region's gas utilities were short by 179 billion cubic feet of supplies needed to serve all holders of firm or noninterruptible contracts. These 1974-75 results by states are shown in the Appendix, although figures are not yet available for the recent winter season. It should be noted that these deficiencies are in addition to curtailments of gas supplies intended for interruptible contract consumers.

One important way in which the Northeast region differs from the rest of the country is in the prices paid for natural gas. Both wholesale and retail prices in representative Northeast cities have been significantly higher than those paid in other parts of the country and have contributed to the area's heavy dependence on oil. Higher price levels reflect higher costs in both transmission and distribution. Typical comparisons are shown below:

Natural Gas Prices
(Cents Per MCF)

<u>In Region:</u>	<u>Wholesale¹</u>	<u>Retail²</u>	<u>Outside Region:</u>	<u>Wholesale¹</u>	<u>Retail²</u>
Boston	76.7	217.0	Chicago	36.7	108.6
Washington	60.3	138.7	San Francisco	36.5	77.6
Philadelphia	53.3	143.5	Los Angeles	40.7	76.6
Baltimore	53.2	138.7	Minneapolis	45.1	99.9
New York	51.9	163.9			

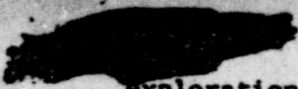
¹Prices paid by distributors (utilities) to pipeline companies (7/1/72).

²Prices paid by residential consumers (1973).

BEST COPY AVAILABLE

In the Northeast, which relies almost exclusively on interstate gas, the curtailment shortages and higher gas prices paid in the region have affected total gas consumption as well as the pattern of use within the area. Although the region contains about 26 percent of the U.S. population and consumes about 22 percent of total energy resources, it receives only about 10 percent of total natural gas production. Natural gas production is an important wedge in the region's energy picture, and future gas shortages would pose serious problems concerning substitution of alternate fuels. No help from offshore gas supplies could be expected from the leasing of Mid-Atlantic offshore tracts for at least five years after the sale. Leasing of the Baltimore Canyon tracts could be viewed as an intermediate solution to the area's energy shortages, in that it could buy more time until alternate sources can be developed in the long run. Peak gas production is targeted for 1989-1990.

During 1975, total domestic consumption decreased about 7 percent to 19.5 Tcf, while proved reserves, excluding Alaska, declined for the eighth successive year. Despite anticipated lower consumption over the next two years, total supply and consumption are expected to rebound to about the 1975 level by 1980, according to the U.S. Bureau of Mines. Pipelines imports (almost entirely from Canada) have accounted for under 5% of total consumption since 1971 and are not expected to help much in the total future supply picture. The experience of the past two winter's gas shortages, the prospects for continuing supply problems, and the long lead time involved in developing alternate fuels, accentuates the critical need to further stimulate offshore


3176

exploration and development of domestic gas resources. If OCS leasing is accelerated and resource availability proves more favorable than expected, natural gas production could reach 25.5 Tcf by 1985, according to FEA's 1976 outlook. Acceleration of OCS leasing to increase domestic oil and gas production is a major objective in the Administration's efforts towards energy self-sufficiency.

Economic Description and Analysis for Sale Area

Energy's total capital requirements for 1975 through 1984 to achieve accelerated energy supply will reach \$587 billion (in 1975 dollars), representing about 30 percent of the total U.S. fixed capital investment. Oil and gas industry capital needs over the next 10 years will range from \$159 billion (under business-as-usual demand but continued price regulation), to a high of \$316 billion (accelerated exploration, development and further energy conservation actions). These results were shown in 1976 National Energy Outlook. FEA's update of the initial "Project Independence" report (November 1974) took into account major changes and government actions affecting the oil and gas outlook as well as other studies of future capital needs by a number of other national organizations.

Some of the studies which forecast specific petroleum industry capital needs show that results for the 1975 to 1984 period range from \$146 billion (Arthur D. Little) to \$316 billion (FEA--Accelerated Supply), due primarily to different sets of assumptions made:

Oil and Gas Industry Capital Expenditures, 1975-1984
(Billions of 1975 Dollars)

National Petroleum Council	1972	\$ 160
National Academy of Engineers	1974	179
Arthur D. Little	1974	146
Standard Oil, Ohio	1975	281
Bankers Trust Company	1976	190
Federal Energy Administration	1976	
Reference Scenario		244
Accelerated Supply Scenario		316
Price Regulation Scenario		159

For 1975 to 1984, from 70 to 83 percent of total capital spending will be for domestic exploration and development--up from 64 percent in the previous decade. This expected increase is consistent with the shift in emphasis from refining and marketing to production.

Although capital availability is recognized to be a possible restraining factor, the FEA report and most of these studies of future petroleum capital needs have concluded that adequate capital probably will be available without a major distortion in long-range savings and interest-rate patterns.

An opinion frequently expressed in these studies was that governmental policy objectives should be designed to provide the economic climate in which private industry can assume the investments required.

For the top 30 petroleum industry firms, 78 percent of the capital spending needs over the last 10 years were met by internally generated funds. The remaining funds came from borrowing and stock offerings. Since other producers have been more dependent on external sources, it appears that for the whole industry, 50 to 60 percent of total capital needs will be covered by internal funds.

Offshore drilling rig availability is at its highest point ever, according to the Oil and Gas Journal (May 3, 1976). Although the present worldwide fleet totals 333 (including 45 idle), 90 new rigs will be delivered over the next 12 months. Offshore equipment scheduled for delivery this year was planned several years ago when the industry was facing overwhelming shortages and high demand. Although historically the Gulf of Mexico has attracted about 25 percent of the available rigs, a gradual decline in the Gulf's leasing has occurred since October 1974. Although some boosts in offshore Texas activity helped to regain drilling levels this year, vessels such as jackups and semisubmersibles, and drill ships and some surplus rigs from Europe and other overseas areas are expected to find their way to the Mid-Atlantic coast.

Occasional spot shortages of tubular steel needed for rig fabrication have occurred in the past few years but without seriously disrupting production. Such shortages are not expected to pose a serious constraint for Baltimore Canyon development.

~~Regarding manpower availability~~, there continues to be a shortage of petroleum engineers and highly skilled rig and platform workers. Petroleum engineers are being supplemented by other types of engineers who are provided training in the petroleum field. Likewise, skilled workers are being developed through on-the-job training. Many skills found in other industries are easily adaptable to the offshore petroleum industry (e.g., welders and mechanics). While skilled specialized labor could occasionally present a problem, the nature of the labor force in the Mid-Atlantic coastal region, current employment levels, and training programs should be able to alleviate such shortages to the degree that they will not pose a major constraint to development in the region as a result of this proposed sale.

The developmental activity (acreage, facilities, and equipment) expected to follow as a result of the proposed sale is summarized in Table 1, for both the low and high resource levels. Corresponding estimates of total capital investment required range from approximately \$850 million to \$3.3 billion. These estimates were derived from cost data supplied by U.S. Geological Survey and the Atlantic Offshore Operators Committee. They exclude lease acquisition costs and are summarized in Table 2. Bonus

4

I - ACREAGE, FACILITIES AND EQUIPMENT EXPECTED TO DEVELOP
HYDROCARBON RESOURCES WITHIN THE PROPOSED SALE AREA

3181

Based on USGS
estimates for
this Proposed
Sale (25 Year
Field Life)¹

a. Acres proposed to be offered	376,750
b. Wells	
--exploratory	60-240
--producing	200-800
c. Rigs (maximum working at one time)	
--exploratory	5-20
--development	5-20
d. Platforms and Equipment	10-50
e. Offshore Pipeline (Miles)	100-450
f. Pipeline Terminal/Storage Facilities	1-2
g. Onshore Operations Bases	1-2
h. Gas Processing Plants (Units with capacity of 300 to 500 mmcf/d)	3-6
i. Tankers (if utilized)	(Contingent upon technological and eco- nomic considerations: unknown at this time.)

Note: Numbers of anticipated facilities are not necessarily proportional to the amount of estimated recoverable resources, because of differences in assumed development strategies and other assumptions.

¹Low Case: 0.4 billion barrels of oil and 2.6 trillion cu. ft. of gas.
High Case: 1.4 billion barrels of oil and 9.4 trillion cu. ft. of gas.

3182

TABLE 2 -

ESTIMATED INVESTMENT COSTS, MID-ATLANTIC SALE #40
FOR LOW CASE (1) AND HIGH CASE (2) (25 YEAR FIELD LIFE)

<u>Capital Costs</u>	<u>Range of Facilities</u>	<u>Range of Investment</u> (millions \$)
Exploratory Wells Drilling @ \$3,000,000	60-240	180-720
Development Wells Drilling @ \$1,200,000	200-800	240-910
Platforms and Equipment (Pumps, separators, gathering lines, etc.) @ \$20,000,000	10-50	200-1,000
Large Dia. Offshore Pipeline @ \$1,000,000 (per mile)	100-450 (miles)	100-450
Pipeline Terminal/Storage Facilities @ \$4,000,000	1-2	4-8
Onshore Operations Facilities (Incl. Pollution Containment & Pick-up Equipment) @ \$2,800,000	1-2	2.8 - 5.6
Gas Processing Plants (Capacities: 300 mmcf - Low Case 500 mmcf - High Case) @ \$40,000,000	3-6	120-240
Service Support Equipment (Mud Suppliers, Logging, Welding, Wellhead Equipment, Cementing, Diving Service, Trucking & Rental Tool Co's.)	(Misc.)	5.2

Total \$ 852 - 3338.

Note: Numbers of anticipated facilities are not necessarily proportional to the amount of estimated recoverable resources, because of differences in assumed development strategies and other assumptions.

¹ 0.4 billion barrels of oil and 2.6 trillion cubic feet of gas.

² 1.4 billion barrels of oil and 9.4 trillion cubic feet of gas.

payments for this proposed sale have been estimated at \$400 to \$600 million. Royalty payments over the entire producing period would total \$900 million to \$3.3 billion. The present value of these estimated royalty payments is \$230 to \$880 million.

3183

Salaries are estimated to total \$212 million (low resource estimate) to \$613 million (high resource estimate) for years 1976 through 1999.

An analysis of the economic impact of the proposed sale and subsequent development on the Mid-Atlantic coastal region shows that the impacts will be relatively minor for the area as a whole. For example, changes of less than one percent were shown for most of the various measures of regional economic activity when comparing base case levels (without offshore development) and expected levels (with offshore development) for the years 1980, 1985, and 1990. Over the estimated life of the offshore field the greatest regional impacts were shown to occur in construction activity (+2.0 percent in 1980), private investment (+1.6 percent in 1980), and the balance of payments (-3.0 percent in 1990). These results came from application of the Harris Multi-Regional Economic Forecasting Model, which provided constant dollar projections for each economic variable for base case level, with development, and differences for the above years.

factors mitigating a larger potential impact of new OCS activity on the region include 1) the high level and variety of industrial development already existing within the region, 2) the fact that portions of rig crews, operations and service support personnel will be imported from other areas such as the Gulf of Mexico where offshore activity is already well developed, and 3) fabrication of required equipment such as platforms, pipelines and rigs most likely will be provided by established facilities outside of the region.

Regarding the economic impact of the proposed Mid-Atlantic development on the total U.S. economy, results from the model were as expected--percentage changes were even smaller than the above results for the region and for most economic measures, no essential differences were shown. Conclusions were drawn from comparisons of various economic projections for the U.S., with and without Mid-Atlantic OCS development assumptions.

8

TOTAL USA CAPITAL NEEDS

Although capital is the primary fuel of our economy, investment needs for future energy development can not be easily isolated from investment money needed for future economic growth. Therefore some of the factors relating to the total domestic capital outlook are perhaps best discussed here together with future capital needs for total energy, as well as for the oil and gas industry sector. A brief summary of future oil and gas capital availability (plus rigs and manpower availability) are included in the main text.

Several indications of the capital investment challenge ahead are seen in studies made by both General Electric Company and the U.S. Department of Commerce. Both studies confirm the massive size of total U.S. private capital requirements expected for the period 1974 through 1985, which are estimated at from \$4.0 trillion to \$4.5 trillion (current dollars). In comparison, for the preceeding period of the same length (1962-1973), total U.S.A. capital outlays were only \$1.5 trillion. (The G.E. study assumes a real GNP growth rate of 4 percent annually and inflationary growth of 5 percent). Thus the total capital needs in coming years will be about three times the level of the recent past.

Since there is evidence to show that the U.S. has not been keeping pace in its capital investments, further consideration to capital formation problems is needed in the development of long-term energy

goals. Briefly, the record shows the following results which influence the pattern of U.S. investment:

(1) During the 1960's and through 1973, the U.S. had the worst record of fixed capital expenditures as a percentage of real national output among the eleven major industrialized free world countries. Although the amounts of capital investment in the U.S. continue to increase and our capital-to-labor ratio is still relatively high, other nations in recent years have allocated a substantially larger percentage of their resources to new capital formation. The U.S. figure for total fixed investment (17.5%) was 7.2% lower than the average for eleven OECD countries. When only nonresidential investment is considered, no change is shown in the relative position of the U.S.

Investment as Percent of Real National Output
1960-1973¹

	<u>Total fixed²</u>	<u>Nonresidential fixed</u>
Japan	35.0	29.0
West Germany	25.8	20.0
France	24.5	16.2
Canada	21.8	17.4
Italy	20.5	14.4
United Kingdom	18.5	15.2
United States	17.5	13.6
11 OECD countries	24.7	19.4

¹OECD concepts of investment and national product. OECD figures include nondefense government outlays for machinery and equipment in the private investment total. U.S. data adjusted for comparability.

²Including residential.

Source: U.S. Department of the Treasury.

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(2) Correspondingly, the U.S. record of annual productivity growth in the same period (2.1%) and real economic growth (4.0%) during the 1960's also were among the lowest of the major industrialized nations.

Productivity Growth, 1960-1973 (Average Annual Rate)

	<u>Gross domestic product per employed person</u>	<u>Manufacturing output per man-hour</u>
United States	2.1	3.3
Japan	9.2	10.5
West Germany	5.4	5.8
France	5.2	6.0
Canada	2.4	4.3
Italy	5.7	6.4
United Kingdom	2.8	4.0
11 OECD nations	5.2*	6.1

*Average for 6 OECD countries listed.

(3) During the 1960's, about 62 percent of U.S. capital investment went for modernization and replacement, while some other nations channeled more of their resources into new plants and equipment, thereby eroding ^{the} U.S. competitive edge in world markets.

(4) For several decades heavy emphasis has been placed on personal consumption and government outlays, as opposed to gross savings and capital formation. The emphasis on consumption has undoubtedly caused much of the rapid growth in the U.S. economy. However, gross private savings flows required for capital investment

remained stable from 1955-1974 and averaged only 15-16 percent of total G.N.P. These results as a percent of GNP were lower in the U.S. than in many other countries.

Average Annual Gross Savings Flows As A Percent
Of Gross National Product

	<u>1955-1959</u>	<u>1960-1964</u>	<u>1965-1969</u>	<u>1970-1974</u>
Gross private saving	15.9	15.4	15.9	15.8
Personal saving	4.5	3.8	4.5	5.5
Undistributed corporate profits	3.4	2.8	3.1	2.8
Inventory valuation	-.3	0	-.3	1.2
Capital consumption allowances	8.3	8.8	8.7	8.7

Source: Department of Commerce, Bureau of Economic Analysis.

(5) A large share of U.S. capital outlays have been committed to the services category (70 percent from 1969-1971). This tends to over-emphasize consumption and moderates productivity growth. The U.S. figure for the services area is significantly higher than that reported by five other major industrial nations, according to a study by OECD.

Although the U.S. has been capable of meeting its past sizeable capital investment needs, it is unrealistic to assume that historical patterns of past investment and productivity will be adequate to meet the enormous priorities of the future. Success in meeting the formidable future capital needs will be heavily dependent on the shape of government policies. The pattern of these policies

strongly influences the national scope and rate of capital investment, since spending decisions are directly affected through incentives and indirectly by tax and regulatory policies, as well as by the government's own spending patterns. In view of the enormous future capital spending needs, the following policies which would help bring about a suitable economic climate for private investment programs could be considered:

- (1) Gradual shifts might be made in the government's domestic policies away from continued growth in personal consumption and government spending, towards policies influencing greater savings, capital formation and investment.
- (2) If the Federal budget, which has reported a deficit in fourteen of the past fifteen years, could be gradually balanced over time and can record occasional surpluses, it would free up capital resources needed to fulfill private investment claims. By budget balancing over time the flow of future savings is not diverted away from private investment.

(3) Policy objectives should provide the economic climate to which private industry can assume the sizeable investments needed. Although an active investment role is played by many foreign governments in basic resource fields, in the U.S., the government has not attempted to control the pattern of spending. The private sector continues to provide the best means of expanding capital investment programs in the U.S.

ENERGY AND OIL & GAS CAPITAL INVESTMENT REQUIREMENTS

A sector of capital investment which is particularly critical to economic growth is energy, for which national goals of greater self-sufficiency are becoming more clearly defined. Energy's total capital needs over the next ten years to achieve accelerated energy supply will amount to \$587 billion (in 1975 dollars), representing about 30 percent of total U.S. fixed capital investment (vs. 29 percent historically during 1947-1974). This appraisal of energy capital needs is shown in 1976 National Energy Outlook, recently released by the Federal Energy Administration.

Under four major scenarios postulated by FEA, the next ten year estimated oil and gas capital, exploration and development needs will range from \$159 billion (under business-as-usual demand but continued price regulation) to a high of \$316 billion (accelerated

exploration & development and further energy conservation actions).

Results of these four scenarios are shown below:

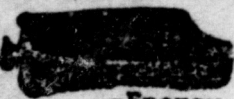
Cumulative Capital Requirements for Energy
1975-1984
(Billions of 1975 Dollars)

	<u>Reference</u>	<u>Accelerated Supply</u>	<u>Electri- fication</u>	<u>\$9 Oil Price Regulation</u>
Oil & Gas	234	304	234	154
Coal	18	18	22	17
Synthetic fuels	19	19	19	19
Electrical utilities	277	215	323	257
Other	<u>31</u>	<u>31</u>	<u>36</u>	<u>31</u>
Total	579	587	634	478

*Excludes lease rentals and geological and geophysical expenses.

Source: Federal Energy Administration.

Since FEA's release of the initial Project Independence Blueprint in November, 1974 many concerns have been expressed regarding attainment of the lofty "independence" goal initially targeted for 1980 and the possible future capital shortages in achieving this high level of self-sufficiency. FEA's revised analyses and forecasts have taken into account results of energy outlook studies made by a number of institutions, banks, consultants, oil companies and other government agencies and have also considered major changes since 1974 in the oil and gas outlook affecting oil supply and demand:

-Energy legislation (E.P.C.A.) was enacted which largely removed the oil depletion allowance, sets new oil pricing policy and puts renewed emphasis on conservation measures.

-Federal (Geological Survey) estimates of oil and gas resources were lowered, although upward revisions were made in Northern Alaska's rate of development.

-Further increases in imported oil prices occurred.

-Higher energy prices have spurred oil and gas exploration and lowered the rate of energy demand growth.

The newly revised FEA report and most of these studies of capital adequacy have concluded that adequate capital will be available without a major distortion in long range savings and interest rate patterns. The 1976 report, however, still provides a grim picture of the U.S. energy outlook since oil imports are expected to more than double by 1985, unless oil and gas prices are deregulated, accelerated OCS development is pursued, and strong government support is provided for expansion of alternate fuels production. (These assumptions underlie the Accelerated Supply Scenarios.) By 1985, a 30 percent decline is projected in nuclear power availability, due to deferred and cancelled plants.

In releasing the revised outlook, FEA reported that major improvements had been made in its forecasting and modeling techniques.

and that the effects of alternate price regulation policies, environmental controls and shifts in the energy resource mix were explicitly evaluated.

Several other studies, (New York Stock Exchange and Chase Econometrics) suggest that there is a substantial risk that total energy capital demands will outstrip supply at reasonable rates by a wide enough margin to cause serious difficulties. Relatively optimistic projections provided by Data Resources, Inc., Brookings Institution and the Department of Labor concluded that there are combinations of Federal economic policy and private savings behavior that can meet the nation's energy capital needs. However, four of these five studies (NYSE, Chase, DRI, and the Labor Dept.) assume a continued federal budget deficit.

The recent Bankers Trust Company study examined the probable capital needs of energy industries through 1990 and related them to the anticipated capital markets to see whether the concern over a possible capital shortage was justified. Three cases of energy supply were examined: The first assumed no constraints on imports. The second assumed domestic energy independence by 1990, while the third assumed U.S. energy independence by 1985. The study found, suprisingly, that in all three cases the capital market appears large enough to handle the energy industry requirements without inordinate strain. Principal assumptions: 3.5 percent annual growth in GNP, 3 percent annual growth in energy use, gradual

recovery from recession in this decade, continued government deficits into the 1980's, foreign sources of capital will at least meet demands of foreign energy development, and either free market conditions or governmental regulations and policies which will continued energy development as efficiently as free market conditions.

Briefly summarized below are results of some studies which forecast specific petroleum industry capital needs for the 1975-1984 period. Results range from \$146 billion (Arthur D. Little) to \$316 billion (FEA-Accelerated Supply):

Petroleum Industry*Capital Expenditures, 1975-1984
(Billion of 1975 Dollars)

National Petroleum Council	-	1972	\$ 160
National Academy of Engineers	-	1974	179
Arthur D. Little	-	1974	146
Standard Oil-Ohio	-	1975	281
Bankers Trust Company	-	1976	190
Federal Energy Administration	-	1976	
Reference Scenario			244
Accelerated Supply Scenario			316
Price Regulation Scenario			159

*Oil and Gas

These forecasts differ primarily because of different assumptions made concerning the sources and amounts of investment funds needed in relation to government spending, monetary policy, income and savings levels, economic growth, inflation and tax policy.

Chase Manhattan's Energy Economics Division in 1971 had forecast world-wide petroleum financial requirements at \$400 billion (1970 dollars) needed to find 600 billion barrels of oil between 1970 and 1985. Another \$370 billion of capital needs for this period were estimated for development (refineries, tankers, pipelines, environmental equipment, etc.) For the U.S. only, the Chase Division estimated \$315 billion in total capital requirements for the next ten years (1976-1985). Their estimate includes a 5 percent annual inflation factor. The overall impact of energy requirements is summarized in the bank's Special Petroleum Report - "How Much Oil-How Much Investment", (March, 1975). One of the major concerns of these reports over many years has been the chronic underinvestment in energy resources, which became apparent in the late 1950's.

For 1975-1984, from 70 percent - 83 percent of oil and gas capital spending will be used for domestic exploration and development - up from the 63 percent average in the previous decade. This expected increase is consistent with the shift in emphasis from refining and marketing to exploration/development and production.

The top thirty majors and large integrated companies reporting to Chase Manhattan account for about 70 percent of domestic crude production. These firms have been most successful in raising capital funds internally (about 78 percent over the period 1965-1974):

Sources and Uses of Funds for Worldwide Operations of
Group of Thirty Large Petroleum Companies, 1965-1974
(\$ Billion)

<u>Net Sources of Funds</u>	<u>Dollars</u>	<u>Percent</u>
Net-Income	74.8	
Less: Dividends	(33.9)	
Income Retained in the Business	40.9	29.4
Writeoffs and Non-cash Charges	68.2	49.0
Net Funds Generated from Operations	109.1	78.4
Long Term Debt Issued	35.1	
Less: Long Term Debt Repaid	(19.6)	
Net Long Term Debt Issued	15.5	11.1
Preferred and Common Stock Issued	3.2	
Less: Preferred and Common Stock Retired	(2.0)	
Net Stock Issued	1.2	0.9
Sale of Assets and Other	13.4	9.6
Total	\$139.2	100.0
<u>Uses of Funds</u>		
Capital, Exploration and Development Expenditures	117.4	84.3
Investments and Advances	6.4	4.6
Increase in Working Capital	15.4	11.1
Total	139.2	100.0

Source: Chase Manhattan Bank, "Financial Analysis of a Group of Petroleum Companies"

Remaining oil and gas producers beyond the top thirty have been more dependent on external sources. On balance, it appears that between 50 percent and 60 percent of capital for exploration and development over the next ten years will probably be covered by writeoffs and non-cash charges, unless major accounting changes

are mandated by Congress. The rest of the needed funds, according to Chase Manhattan will have to be generated through retention of earnings or through external financing.

Although petroleum industry expenditures are made regionally, they are financed through world-wide operations of the companies and there is no direct, immediate way to determine the exact sources of funds for future domestic operations. Some needed funds may come from repatriation of overseas assets, as the emphasis shifts more to domestic production. In the short run, these funds may also be augmented by payments made by the OPEC countries for nationalized properties.

An important factor concerning the ability of the oil and gas companies to attract capital is their return on equity. Over the 1965-1974 period the petroleum industry averaged 13.1 percent, slightly above the 13.0 percent average for all manufacturing industry. However, the 10-year average masks the results stemming from the large crude and product price increases of 1973 and 1974, when the industry's return on equity rose to 15.6 percent and 19.6 percent, respectively. These increases, as shown in Citibank's annual surveys, were due mostly to higher inventory profits as prices rose dramatically. The 1975 return on equity for 94 worldwide petroleum (oil and gas) companies reporting, averaged 14.1 percent, compared to 12.3 percent for all manufacturing.

3138

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The Petroleum industry's return on equity should be at least 15 percent, to be competitive in attracting capital, according to Chase Manhattan Bank.

Firms reporting to Citibank include the integrated U.S.-based petroleum companies (and include oil and gas operations). These results are shown below annually since 1965:

Worldwide Return on Equity of Petroleum Companies

	<u>Percent Return on Equity</u>	
	<u>All Industry</u>	<u>Petroleum</u>
1965	13.8	11.9
1966	14.1	12.6
1967	12.6	12.8
1968	13.2	13.1
1969	12.7	11.9
1970	10.3	11.0
1971	10.9	11.2
1972	12.1	10.8
1973	14.5	15.6
1974	15.3	19.6
1975	12.3	14.1
Weighted Average:		
1965-74	13.0	13.1
1965-75	12.9	13.1

*All manufacturing (including oil and gas). Excludes transportation companies, public utilities, and financial companies.

Source: First National City Bank (New York).

Profits - wise, the Oil and Gas Journal's recent survey of annual reports called 1975 a so-so year. Although the study of 28

14

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annual reports showed a combined profits decline of 23 percent from the record high level of 1974, 19 of the 28 companies did report profit gains over 1973, also a so-so year.

Other 1975 highlights from the O&GJ report:

- (1) Lower demand, coupled with normal decline in productivity of older field, cut total liquids production by 14 percent. Natural gas production declined about 6 percent.
- (2) Gross revenues rose 5 percent, boosted by higher oil and gas prices.
- (3) Capital and exploration outlays were up 10 percent to \$24.6 billion, as 15 companies stepped up their spending.
- (4) Total wells drilled increased 17 percent to 37,092, in efforts to offset a decline in U.S. reserves. (FEA's reported statistics showed that drilling of oil wells only totaled 16,336, an increase of 28 percent from domestic oil wells drilled in 1974).
- (5) Return on equity averaged 12.3 percent (but only for the companies in the survey).

1. If the supervisor, when having reason to believe that a site, structure, or object of historical or archeological significance, hereinafter referred to as "cultural resource," may exist in the lease area, gives the lessee written notice that the lessor is invoking the provisions of this stipulation, the lessee shall immediately upon receipt of such notice comply with the following requirements:

Prior to any drilling activity or the construction or placement of any structure for exploration or development on the lease, including but not limited to, well drilling and pipeline and platform placement, hereinafter in this stipulation referred to as "operation," the lessee shall conduct geophysical surveys to determine the potential existence of any cultural resource that may be affected by such operations. All data produced by such geophysical surveys shall be examined by a qualified marine archeologist or archeological surveyor to determine if anomalies are present which suggest the existence of a cultural resource that may be adversely affected by any lease operation. If such anomalies exist the lessee shall: 1) locate the site of such operation so as not to adversely affect the anomaly identified; or 2) establish, to the satisfaction of the Supervisor, on the basis of further archeological investigation conducted by a qualified marine archeologist using such survey

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equipment and techniques as deemed necessary by the Supervisor, either that such operation will not adversely affect the anomaly identified or that the potential cultural resource suggested by the occurrence of the anomaly does not exist.

Upon completion of any geophysical or other survey conducted for archeological purposes the lessee shall forward a report prepared by the archeologist or archeological surveyor to the Supervisor for his review. Should the Supervisor determine that the existence of a cultural resource which may be adversely affected by such operation is sufficiently established to warrant protection, the lessee shall take no action that may result in an adverse effect on such cultural resource until the Supervisor has given directions as to its disposition.

The lessee agrees that if any site, structure, or object of historical or archeological significance should be discovered during the conduct of any operations on the leased area, he shall report immediately such findings to the Supervisor, and make every reasonable effort to preserve and protect the cultural resource from damage until the Supervisor has given directions as to its disposition.

2. [REDACTED]
- Should any area of special biological significance be discovered during the exploration, development, and/or production stage(s) or as a result of Bureau of Land Management Baseline Studies, the lease block(s) or portion(s) thereof containing said area or resource shall not be explored and/or developed until the lessee has demonstrated to the satisfaction of the Supervisor that adequate technology and sufficient environmental safeguards exist and will be used to prevent to the maximum extent possible, using the best available technology and all reasonable care, detrimental impact upon said areas.

If the Supervisor when having reason to believe that such a site or resource may exist in the lease area, gives the lessee written notice that the lessor is invoking the provisions of this stipulation, the lessee shall immediately upon receipt of such notice comply with the following requirements: prior to any drilling activity or the construction or placement of any structure for exploration or development of lease areas including, but not limited to, well drilling and pipeline and platform placement, hereinafter in this stipulation referred to as "operation," the lessee shall conduct site specific surveys, as approved by the Supervisor, to determine the potential existence of any unique biological resource that may be adversely affected by an lease operation. If such surveys show anomalies that suggest the potential existence of a unique biological resource that may be adversely affected by any lease operation, the lessee shall: 1) relocate the site of such operation so as not to adversely affect the anomaly

3

identified; or 2) establish, to the satisfaction of the Supervisor, on the basis of the site specific survey, either that such operation will not adversely affect the anomaly identified or that the potential biological resource suggested by the occurrence of the anomaly does not exist. .

All data obtained in the course of any biological surveys conducted pursuant to the provisions hereof shall be submitted to the Supervisor with any application by the lessee for drilling or other activity with a copy to the Manager, New York OCS Office. Should the Supervisor determine, contrary to the contentions of the lessee, that the existence of a biological resource which may be adversely affected by such operation is sufficiently established to warrant protection, the lessee shall take no action that may result in any adverse effect on such resource until the Supervisor has given the lessee directions with respect to the resource.

The lessee agrees that, if any site, structure, or object of biological significance should be discovered during the conduct of any operations on the leased area, he shall report immediately such findings to the Supervisor, and make every reasonable effort to preserve and protect the resource from damage until the Supervisor has given the lessee directions with respect to the resource.

4

3. Structures for drilling or production, including pipelines and subsea systems, shall be kept to the minimum necessary for proper exploration, development, and production and, to the greatest extent consistent therewith, shall be placed so as not to interfere with other significant uses of the Outer Continental Shelf, including commercial fishing. To this end, no structure for drilling or production, including pipelines and subsea systems, may be placed on the Outer Continental Shelf until the Supervisor has determined that the structure is necessary for the proper exploration, development, or production of the lease area and that no reasonable alternative placement would cause less interference with other significant uses of the Outer Continental Shelf, including commercial fishing. The lessee's exploratory and development plans, filed under 30 CFR 250.34, shall identify the anticipated placement and grouping of necessary structures including pipelines and subsea production systems, showing how such placement and grouping will have the minimum practicable effect on other significant uses of the Outer Continental Shelf, including commercial fishing.

4. If feasible pipeline rights-of-way can be determined and obtained and, if laying such pipelines is technically and economically feasible, no crude oil production will be transported by surface vessel from offshore production sites to adjacent onshore facilities except in case of emergency. Determinations as to emergency conditions and the technical and economic feasibility of pipeline laying will be made by the Supervisor. For continuous production, transportation of crude oil by barge from offshore production sites to adjacent onshore facilities will not be permitted.

3270

3206

The lessor specifically reserves the right to require that any pipeline to be used for transporting production from this lease to shore be placed in certain designated areas or corridors.

6. Wherever technically and economically feasible, all pipelines, including both flow lines and gathering lines for oil and gas, shall be buried to a depth suitable for adequate protection from water currents, storm scouring, fisheries trawling gear, and other use and environmental factors as determined by the Department of the Interior permitting agency on a case-by-case basis.

Surveillance of all buried pipelines shall be conducted at regular intervals to ensure that they remain buried. Surveillance methods utilized shall be those specified in present and future OCS Orders and regulations or as approved by the Department of the Interior permitting agency.

7. This stipulation is proposed for leases covering Blocks 769, 770, 771, 812, 813, 857, and 858 on Protraction Diagram No. NJ 18-3)

Prior to any drilling activity or the construction or placement of any structure for exploration or development on the lease, including but not limited to, well drilling and pipeline and platform placement, hereinafter in this stipulation referred to as "operation," the lessee shall conduct geophysical or other surveys as specified by the Supervisor to determine the existence of any unexploded ordnance, munitions, mine or bomb. If any object is found which may be such a device the lessee shall: 1) locate the site of such operation so as not to adversely affect the object identified; or 2) establish to the satisfaction of the Supervisor, on the basis of further investigations using such survey equipment and techniques as deemed necessary by the Supervisor, either that such operation will not affect the object identified, that the operation will not be affected by the object, or that the object is not an explosive device.

Upon completion of any geophysical or other survey conducted for the purpose of locating undetonated explosive devices, the lessee shall forward a report and all pertinent data to the Supervisor for his review. Should the Supervisor determine that the existence of such devices may adversely affect the operation, the lessee shall take no action until the Supervisor has given directions as to the conduct of that operation.

The lessee agrees that if any undetonated explosive device should be discovered during the conduct of any operations on the leased area, he shall report immediately such findings to the Supervisor, and make every reasonable effort to avoid the detonation of said device until the Supervisor has given directions as to its disposition.

3210
8. (The [redacted] is proposed for leases covering those blocks located in defense warning areas)

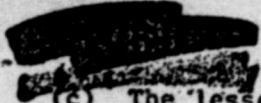
(a) Whether or not compensation for such damage or injury might be due under a theory of strict or absolute liability or otherwise, the lessee assumes all risks of damage or injury to persons or property, which occurs in, on, or above the Outer Continental Shelf, to any person or persons who are agents, employees or invitees of the lessee, its agents, independent contractors or subcontractors doing business with the lessee in connection with any activities being performed by the lessee in, on, or above the Outer Continental Shelf, if such injury or damage to such person or property occurs by reason of the activities of any agency of the U. S. Government, its contractors or subcontractors, or any of their officers, agents or employees, being conducted as a part of, or in connection with, the programs and activities of the Commanding Officer, Naval Air Station, Lakehurst, New Jersey. The lessee assumes this risk whether such injury or damage is caused in whole or in part by any act or omission, regardless of negligence or fault, of the United States, its contractors or subcontractors, or any of their officers, agents, or employees. The lessee further agrees to indemnify and save harmless the United States against, and to defend at its own expense the United States against all claims for loss, damage, or injury sustained by the agents, employees, or invitees of the lessee, its agents or any independent contractors or subcontractors doing business with the lessee in connection with the programs and activities of the

11

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aforementioned military installation, whether the same be caused in whole or in part by the negligence or fault of the United States, its contractors or subcontractors, or any of their officers, agents, or employees and whether such claims might be sustained under theories of strict or absolute liability or otherwise.

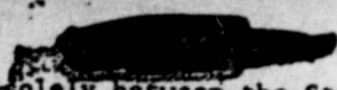
(b) The lessee agrees to control his own electromagnetic emissions and those of his agents, employees, invitees, independent contractors or subcontractors emanating from individual designated defense warning areas in accordance with requirements specified by the commander of the appropriate onshore military installation, i.e., Commanding Officer, Naval Air Station, Lakehurst, New Jersey, to the degree necessary to prevent damage to, or unacceptable interference with Department of Defense flight, testing or operational activities, conducted within individual designated warning areas. Necessary monitoring, control, and coordination with the lessee, his agents, employees, invitees, independent contractors or subcontractors, will be effected by the commander of the appropriate onshore military installation conducting operations in the particular warning area; Provided, however, that control of such electromagnetic emissions shall in no instance prohibit all manner of electromagnetic communication during any period of time between a lessee, its agents, employees, invitees, independent contractors or subcontractors and onshore facilities.

12


(c) The lessee, when operating or causing to be operated on its behalf boat or aircraft traffic into the individual designated warning areas shall enter into an agreement with the commander of the appropriate onshore military installation, i.e., Commanding Officer, Naval Air Station, Lakehurst, New Jersey, utilizing an individual designated warning area prior to commencing such traffic. Such agreement will provide for positive control of boats and aircraft operating into the warnings areas at all times.

9. To provide information to coastal states and thus to assist them in planning for the impact of activities during exploration under this lease, the lessee shall submit, for review and comment, to the Governor of each Mid-Atlantic State that will be directly affected by these activities, a "Notice of Support Activity for the Exploration Program" (hereinafter called "Notice"). For the purpose of this stipulation Mid-Atlantic States include New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina. The lessee shall not be required to include privileged information in this Notice. At his discretion, the lessee may submit either a separate Notice for each Exploration Plan submitted on a lease under 30 CFR 250.34, or a Notice for two or more Plans on one or more leases. The Notice is not subject to specific approval or disapproval by the Supervisor.

A copy of the Notice shall be submitted to the Supervisor no later than the date of submission of the Exploration Plan, with certification that the Notice has already been submitted to the Governor of each Mid-Atlantic State that will be directly affected by activities under the Plan. A lessee who submits a Notice for two or more Exploration Plans shall not be required to supply additional copies of the Notice, but may instead refer to that prior submission. Before the Supervisor approves or disapproves the Exploration Plan, he shall allow at least 30 days from the date of receipt of the certification for the Governor to submit comments on the Notice to the lessee; a copy of these comments shall be submitted to the Supervisor. After submission of certification, the lessee shall forward significant changes in estimated support activities, as an amendment to the Notice, to the Supervisor and to the Governor of each Mid-Atlantic State that will be directly affected by activities under the Plan. Since onshore activities fall within State jurisdiction, the content of the Notice is a matter for consideration


solely between the State and the lessee.

The Notice with respect to the lessee and his contractors should follow these guidelines:

- (1) A description of the facilities, including site and size, that may be constructed, leased, rented, or otherwise procured in affected areas;
- (2) Amount and location of acreage required within the State for facilities, including storage space for supplies;
- (3) An estimate of the frequency of boat and aircraft departures and arrivals, on a monthly basis, and the onshore location of terminals;
- (4) The approximate number of persons who will be engaged in onshore support activities and transportation, the approximate number of local personnel who will be employed by or in support of the exploration program, and the approximate total number of persons who will be employed for the exploration program;
- (5) The approximate addition to the population, on a county basis, due to the exploration program, and the approximate number of persons needing housing and other facilities;
- (6) An estimate of any significant quantity of major supplies and equipment to be procured within the State; and
- (7) The onshore address of the lessee's operation offices and of the contractor's offices involved in the exploratory operation.

United States of America

DEPARTMENT OF THE INTERIOR

Washington, D. C.

321

I certify that the official records of the Department of the Interior are in my legal custody and attest that each annexed paper is a true copy of a document comprising part of the official records of the Department of the Interior:
Memorandum to the Secretary from the Assistant Secretary - Program Development and Budget, dated June 22, 1976, regarding the Program Decision Option Document on Proposed OCS Sale No. 40, and attachments.

Memo to Assistant Secretary - Program Development and Budget through the Assistant Secretary - Energy and Minerals from the Director, Geological Survey, dated June 25, 1976 regarding Potential geologic hazards, OCS Sale No. 40, Mid-Atlantic.

Memo to the Secretary from the Assistant Secretary - Program Development and Budget, dated June 25, 1976, regarding Options for Higher Royalty Rates for Selected Tracts for Proposed OCS Sale No. 40, Mid-Atlantic.

Program Decision Option Document Sale #40 Mid-Atlantic OCS.

IN TESTIMONY WHEREOF, I have subscribed my name, and caused the seal of the Department of the Interior to be affixed on this 22nd day of July, 1976

Louis A. Smith
Acting DIRECTOR OF MANAGEMENT OPERATIONS



United States Department of the Interior

3216

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

Memorandum

JUN 22 1976

To: The Secretary

From: Assistant Secretary--Program Development and Budget

Subject: Program Decision Option Document (PDOD) on Proposed Outer Continental Shelf (OCS) Sale No. 40 to Offer for Lease 154 Tracts in the Mid-Atlantic Offshore New Jersey and Delaware

Your decision is sought on the Bureau of Land Management's proposal to offer for lease 154 tracts in the Mid-Atlantic for the development of oil and gas. This memorandum summarizes BLM's Program Decision Option Document and presents Departmental views and recommendations. Attached are BLM's Program Decision Option Document and the final environmental impact statement for OCS Sale No. 40. A separate issue paper is being prepared to suggest tracts which could be offered at royalty rates greater than 16 2/3 percent.

BACKGROUND

The sale under consideration consists of 154 tracts (876,750 acres) offshore New Jersey and Delaware. The estimated reserves from this sale are 400 million to 1.4 billion barrels of oil and 2.6 to 9.4 trillion cubic feet of gas. The estimated bonus from this sale is \$400 - \$600 million. The present value of the future royalty payments is \$230 - \$880 million. The 154 tracts being considered in this proposal lie in water depths ranging from 40 to 185 meters (131 to 607 feet) and are 47 to 92 miles from shore.

Production from this sale is expected to begin in 1981, with peak production occurring in 1989 or 1990. Peak daily production is estimated at 90,000 - 320,000 barrels of oil and 8.5 million to 3 billion cubic feet of gas per day. Field life is estimated to be 25 years.

The range of facilities needed to develop and produce the oil and gas from the proposed sale area relates to the range of reserve estimates for the area. Ten to fifty platforms, up to four pipelines (100 to 450 miles), one or two terminal/storage facilities, one or two onshore operations bases and three to six new gas processing plants will be required. Existing oil refinery capacity in the northern New Jersey and Delaware River Basin is sufficient to refine oil discovered in the



Mid-Atlantic OCS. Pipeline terminals will most likely be located along the New Jersey coast, with pipeline routes over land to the refineries. It is most likely that the new gas processing plants will be located in New Jersey.

3217

ENVIRONMENTAL ISSUES

The major environmental issues associated with this sale are the effects of potential oil spills on recreational activities and wildlife and the socio-economic effects of OCS development.

Oil Spills

The risk to the environment accompanying oil and gas development in the Mid-Atlantic OCS is relatively minor. The OCS oil spill risk analysis provides a method for analyzing the probability that an oil spill will occur and the probability that it will affect nearshore and onshore resources, such as beaches, birds and other wildlife. The oil spill risk analysis for the proposed sale area indicates the likelihood of any one critical recreational or wildlife resource being affected by a spill is slight. This is largely because the oil fields are not close to shore and the probability of an oil spill is low.

It is possible that a spill from a pipeline break or tanker transport of oil could occur closer to shore. In that event, it is possible that nearshore and onshore resources will be affected. Current containment and cleanup equipment is effective in seas up to six feet; wave heights in the Mid-Atlantic area are generally less than six feet although high waves can occur. While the Mid-Atlantic is a harsh operating environment, seismic, geologic and weather hazards such as those occurring in the North Sea and Gulf of Alaska are not present.

Socio-Economic Effects

Development of the Mid-Atlantic oil and gas resources could conflict with proposed shipping lanes and cause some interference with commercial fishing. It is unlikely that sport fishing will be affected.

Uncontrolled onshore growth (resulting from onshore petroleum support facilities) that could conflict with present land use or cause an overloading of community services is of major concern to the Mid-Atlantic states. The states are concerned about the effects of offshore development on recreation areas from potential oil spills or degradation of recreation areas from onshore development. The economic impacts of the proposed sale on the Mid-Atlantic region as a whole and on the total U.S. economy are expected to be minimal. Changes of less than one percent in various measures of regional activity (e.g., construction, private investment) are expected to be attributable to offshore development. However, small, relatively undeveloped communities in the Mid-Atlantic region could experience significant economic stress during which local services and facilities would be inadequate to cope with the rapid population and general growth accompanying onshore support activities. These problems are expected to be minimized through substantial planning prior to construction of

3218 3.
onshore activities, i.e., to determine how much OCS-related activity can be reasonably borne by the local community. Current regulations require lessees and operators to submit their development plans to the states for review. In addition, sale no. 40 as proposed includes a stipulation requiring that lessees notify Governors of the Mid-Atlantic states regarding the onshore impacts of exploratory activities, i.e., support activities necessary for exploration. These measures should help the Mid-Atlantic states plan for onshore development.

MITIGATING MEASURES

OCS Sale No. 40 as proposed contains nine lease stipulations designed to mitigate potential environmental and socio-economic effects of offshore development: seven pertaining to all leases and two pertaining to leases for specific tracts. The stipulations pertaining to all leases will help the Mid-Atlantic states plan for onshore development; protect archeological, cultural and biological resources; minimize oil transport by tankers and barges; preserve BLM's right to require that pipelines be placed in designated corridors; and require pipeline burial. One stipulation will be applicable to seven tracts and will require the lessee to conduct geophysical surveys to determine the existence of undetonated explosives before beginning operations. The other specific stipulation refers to leases covering those blocks located in defense warning areas and will require the lessee to assume liability for any injuries or property damages resulting from activities at the Naval Air Station, Lakehurst, New Jersey.

A complete text of the stipulations is attached to the PDOD as Appendix D.

OPTIONS

The Secretary is presented with four options for the proposed OCS Sale No. 40. He may choose to proceed with the sale as proposed, cancel the sale or delay it indefinitely, postpone the sale for a specific time period, or modify the sale.

Option I: Approve the Proposal to Lease 154 Tracts Offshore New Jersey and Delaware

This would provide for development of the oil and gas reserves in the 154 tracts. Bonus receipts of \$400 to \$600 million can be expected. Potential adverse environmental and socio-economic effects of offshore oil and gas development would not be avoided. This option includes the nine stipulations discussed above.

Option II: Cancel or Indefinitely Delay the Sale

If Sale No. 40 were permanently canceled it would result in a loss of approximately \$400 - \$600 million in bonus bids, resources foregone of 400 million - 1.4 billion barrels of oil and 2.6 - 9.4 trillion cubic feet of gas, and royalty losses of \$230 - \$880 million. All adverse environmental and socio-economic effects would be avoided. Estimated costs of delaying the sale for one year are \$40 - \$60 million.

Option III: Postpone the Sale for a Specific Time Period

3219

Sale No. 40 could be postponed temporarily to allow additional time to complete baseline and other environmental studies, to implement coastal zone management plans for the Mid-Atlantic states, to await legislation providing financial assistance to states to minimize the financial burdens encountered from OCS development, or to await legislation establishing an oil spill liability fund. Estimated costs of delaying the sale for one year are \$40 - \$60 million.

BLM does not believe there are any significant advantages to postponing the sale. First, baseline and other environmental studies can be completed simultaneously with exploration; environmental data collected during the exploratory phase of operations can be used to develop and/or modify OCS orders and notices to lessees and operators to provide additional environmental safeguards as necessary. Secondly, the Mid-Atlantic coastal zone management plans will most likely be completed and implemented prior to any significant onshore activity resulting from this sale. Finally, proceeding with this sale would not preclude Congress from enacting financial assistance and/or oil spill liability legislation which could apply to past as well as future OCS lease sales.

Option IV: Modify the Sale

To reduce the magnitude of the potential environmental onshore and off-shore effects, the Secretary could reduce the size of the sale by deleting certain groups of tracts. None of the tracts falls into the "high hazard" category, due to their distance from shore and the low probability of oil, in the event of a spill, reaching shore. The oil spill risk analysis does indicate that withdrawal of the northwestern most group of tracts would reduce environmental risk beyond the already low level. However, the risk of environmental damage due to oil spills in the entire sale area is so low that withdrawal of tracts to reduce the potential for oil spill damage offers very little additional environmental protection.

DEPARTMENTAL RECOMMENDATIONS

The Assistant Secretaries for Energy and Minerals, Land and Water Resources, Fish and Wildlife and Parks, Management, and Program Development and Budget recommend Option I, proceed with the sale as proposed. Option I includes all stipulations discussed in the PDOD. A complete text of Departmental views and comments are included in the attached memoranda.

(Sgd) Ronald G. Coleman

Ronald G. Coleman

Attachments



United States Department of the Interior

3220

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

SHRIMP REPORT

3300 (712)

Memorandum

To: Assistant Secretary, Program Development and Budget
Through: Assistant Secretary, Land and Water Resources ✓
From: Director, Bureau of Land Management
Subject: Recommendation for Sale #40, Mid-Atlantic OCS

This is in response to your June 16, 1976, memorandum that accompanied distribution of the Program Decision Option Document for OCS Sale #40, Mid-Atlantic. It is our view that PDOD Option 1, proceed with the sale as proposed, should be adopted. Our analysis indicates that the risks of this sale are sufficiently low that we see no rationale for delaying or modifying the sale.

Copy To:

Sue Kaplan -

Off. Policy Analysis

Note to
Record:
phone call
to Carl Pavetto
Re: Option 1 -
BLM's position is
Option 1 includes
the nine stipulations
outlined in sale
PDOD

1 pm
18 June 76

[Signature]



United States Department of the Interior

3221

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

Memorandum

To: Assistant Secretary—Program Development and Budget
From: Assistant Secretary—Energy and Minerals
Subject: Recommendations and Comments on the Program Option Decision Document for the Mid-Atlantic OCS Sale #40

On the basis of the data and analysis presented in the Program Decision Option Document (PDOD) for the Mid-Atlantic OCS Lease Sale #40, it appears that the net economic benefits which will result from exploration and development of the 154 tracts included in the proposed lease sale exceed the likely environmental costs resulting from development. Therefore, I recommend that the Secretary accept Option 1 of the PDOD and proceed with the sale as proposed. Additionally, I recommend that the data and results obtained from baseline and special studies, which should take place in tandem with exploration activities, be used to determine whether stipulations are needed in the development of specific tracts, as well as the need for and/or modification of OCS orders and notices.

I have several comments on the substance of the PDOD.

Analysis would have been facilitated if the PDOD had presented the present value of the returns from oil and gas development; the present value of the total costs of exploring, developing, and marketing these resources; as well as any environmental losses or values foregone as a result of exploration and production.

A fuller explanation should be given of how the economic data presented in Tables 1, 2, and 3 were developed; Appendix B should be expanded; and consideration should be given to omission of Appendix C.

Handwritten notes:
...analysis
proposed
type
the same
12/1/56
Lester
Kaplan



United States Department of the Interior

FISH AND WILDLIFE SERVICE
WASHINGTON, D.C. 20240

In Reply Refer To:
FWS/OBS

3222

JUN 2 1976

Memorandum

To: Assistant Secretary - Program Development and Budget
Through: Assistant Secretary for Fish and Wildlife and Parks
ACTING DEPUTY ASSOCIATE
From: Director, Fish and Wildlife Service *Wilson B. Turner*
Subject: Comments and Recommendations on the PDOD for OCS
Sale No. 40

Although from an environmental point of view there appears to be no compelling reason not to hold OCS Sale No. 40 - Mid-Atlantic as proposed, there is one issue mentioned in the PDOD which we feel is of concern.

On the first page of the PDOD for OCS Sale No. 40, the following statement is made:

"The U.S. Geological Survey estimates that this area could contain 400 million to 1.4 billion barrels of oil and 2.6 trillion to 9.4 trillion cubic feet of gas. However, because these 154 tracts are located in a frontier area which has experienced no exploration by actual drilling or development, there is no assurance that petroleum in marketable quantities or any petroleum at all, will be found. The extent of resources that may exist will not be precisely known for many years."

An indication of how imprecisely resources in the proposed sale are currently known is indicated by the large range of the U.S. Geological Survey estimates for this area—a range of 1 billion barrels of oil and 6.8 trillion cubic feet of gas. The range of possible resource values is 2.5 times the low oil estimate and 2.6 times the low gas estimate!



BEST COPY AVAILABLE

Granted that it is impossible to make precise estimates of oil and gas resources before wells are completed in an area, however, we feel that statements of this type once again highlight the difficulties encountered in trying to reach a balance between renewable and non-renewable resources in a lease area. While a range of values of this magnitude appears to be acceptable for nonrenewable resources, we feel that it tends to make the evaluation of the resources foregone due to various mitigating measures somewhat questionable.



United States Department of the Interior

3224

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

June 18, 1976

Memorandum

To: Assistant Secretary - Program Development and Budget
From: Deputy Assistant Secretary - Management
Subject: Decision Meeting on Mid-Atlantic OCS Lease Sale #40

Option 1 seems most appropriate, modified by added stipulations set forth in option 4 as appropriate.

Option 2 should be rejected. The decision to lease has already been made and no new arguments are advanced to overturn that decision.

Option 4 should be rejected insofar as it relates to deleting certain groups of tracts. No significant advantages are cited although there is an inconsistency between this option and page 11 of the PDOD wherein it is stated that no proposed deletion suboptions are presented based on the results of the oil spill trajectory model.

Option 3 deals with actions, the occurrence of which would seem to have only limited impacts, possibly as follows:

-- Some uncertainty might be eliminated for bidders if added requirements which might arise from baseline and other environmental studies are known and the restrictions which might arise from coastal zone management plans are identified.

-- Resistance by state and local officials might be reduced if the sale were made at a later date after revenue sharing/compensation funding were available and the oil spill liability fund established.

Since the occurrence of some of these events is uncertain, and the benefits may not be major, it is doubtful they represent a good basis for delay.





United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

JUN 18 1976

IN REPLY REFER TO:

L7619-MQ

4166

3225

Memorandum

To: Assistant Secretary, Program Development and Budget
Through: Assistant Secretary for Fish and Wildlife and Parks
From: Associate Director, Park System Management
Subject: Decision Meeting on Mid-Atlantic OCS Lease Sale #40

The operations associated with the lease sale will not affect any unit of the National Park System.

A stipulation concerning protection of cultural resources in the leased area will be part of leases.

We have no comment on the Sale and offer no views or recommendations on Sale options.

T. E. Cook





United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

3226

June 18, 1976

Memorandum

To: Assistant Secretary - Program Development and Budget

From: Acting Assistant Secretary - Land and Water Resources

Subject: OCS Sale #40

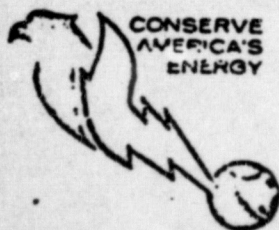
Land and Water Resources recommends that the Secretary adopt Option 4 and modify the sale by attaching to it the stipulations outline in Appendix D of the PDOD.

The sale should proceed and should not be halted or postponed. Clearly the potential oil and gas resources of the Mid-Atlantic OCS are needed if the trend towards greater petroleum imports is to be abated. Moreover, harder data regarding the amount of resources is needed and this data can only be obtained through exploratory drilling.

The selected tracts also pose only minor environmental problems. Although the Mid-Atlantic is a relatively harsh drilling environment, off-shore technology permits us to operate in these areas with minimal risk. In addition, given the distance off-shore, major spills are unlikely to result in serious adverse impacts on the coast. Indeed, the oil spill risk analysis indicated that most spills would not reach the shoreline and those that did would require an average of 30 to 35 days to do so. The latter figure provides evidence that sufficient time will be available, in most cases, to deal with any spills which do occur.

Regarding social and economic impacts, the Harris model used with the EIS indicated that such impacts would be minimal. Given the intense development of the Mid-Atlantic Coast, OCS operations will be readily absorbed. This will be further facilitated because peak operations will not occur until ten years after the sale and development will be gradual.

Postponing the sale will gain very little. The PDOD cited three reasons for delay: (1) wait for completion of environmental baseline studies, (2) wait for completion of coastal zone management plans, and (3) wait for passage of oil spill liability legislation. Making action on the



Save Energy and You Serve America!

sale contingent on any of these actions is unwarranted. The baseline data is not essential to safe offshore operations and the EIS has already provided us with a sound assessment of the area's environment, the coastal zone management plans are likely to be completed before major development gets underway, and oil spill legislation could well pass before significant drilling and production commence.

The sale should proceed and only be modified by the attachment of the stipulations. The primary concerns of the affected coastal States are the impacts of OCS development on their coast lines. As such, requiring the oil companies to supply the States with information regarding development plans will assist the States in reacting to and mitigating onshore impacts. We have taken this course in Alaska and should follow the same in this sensitive frontier area. Environmental concerns also loom large for the Mid-Atlantic States. Accordingly, the stipulations dealing with shipment of oil from platforms to the shore are designed to assure greater environmental protection. Adoption of the stipulations should help to mollify the environmental concerns of the affected States and communities.

Chris Farrand



United States Department of the Interior

3223

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

JUN 21 1976

Memorandum

To: The Secretary

From: Assistant Secretary--Program Development and Budget

Subject: Recommendation for OCS Sale No. 40, Mid-Atlantic

I recommend Option I, proceed with the sale as proposed. This option allows all the tracts in the Mid-Atlantic OCS Sale No. 40 to be offered and includes the stipulations contained in BLM's PDOD.

Ronald G. Coleman





1-
2- 3222

United States Department of the Interior
GEOLOGICAL SURVEY

JUN 18 1976

Memorandum

To: Assistant Secretary—Program Development and Budget
Through: Assistant Secretary—Energy and Minerals
From: Director, Geological Survey
Subject: PDOD - Mid-Atlantic OCS Lease Sale No. 40

We have reviewed the subject PDOD as requested by your memorandum of June 16, 1976, and have no suggested changes except with regard to the wording of stipulations. Our proposed changes in the stipulations are being forwarded to the Bureau of Land Management, at their request, by separate memorandum.

W. A. Radtke
Acting Director

cc: ✓ AS-PD&B (Advance Copy)
AS-EM (2)
Sec'y Gen Files
Sec'y Reading Files (2)
Gen Files--MS 114
Dir Chron--MS 114
CD Files--MS 650
ADC/RE--MS 640
RE Chrons--MS 640
OCS Sale No. 40 File--MS 640 (w/copy PDOD)

} w/o copy/inc PDOD

CD:RLRIOUX:mas:6/18/76:860-7571

Ticket No.: 210107

3230

DECISION

~~CONFIDENTIAL~~

Option I (Approve proposed sale)

OK - w/Steps -

Option II (Cancel or indefinitely delay sale)

Option III (Postpone sale for specific time period)

Option IV (Modify sale)

Other

Sam Hogg

Secretary of the Interior

6-28-76

Date



United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

3231

JUN 25 1976

Memorandum

To: Assistant Secretary—Program Development and Budget
Through: Assistant Secretary—Energy and Minerals
From: Director, Geological Survey
Subject: Potential geologic hazards, OCS Sale No. 40, Mid-Atlantic

After a review of the available geological and geophysical data concerning possible geologic hazards in the area of the proposed OCS Lease Sale No. 40, we submit the following recommendations:

1. We recommend that no tracts be withdrawn from the sale due to geologic hazards. Potential hazards which include scour, shallow faulting and slumping, and creep can be mitigated against by properly designed platforms and drilling and casing programs, or by requiring the location to be changed to avoid such hazards. This can be handled by routine well permitting.
2. Portions of tracts 40-61, 40-74, 40-83, 40-89, 40-94, 40-99, 40-103, 40-107, 40-119, and 40-135 have been identified as having areas of potentially unstable bottom conditions. We recommend that the following stipulation be applied to the subject tracts:

"Portions of this tract may be subject to mass movement of sediment. Emplacement of structures (platforms) or sea floor wellheads for the production or storage of oil or gas will not be allowed on those portions of the tract which may be subject to mass movement of sediments unless or until the lessee has demonstrated to the Supervisor's satisfaction that the potential for mass movement of sediments does not exist or that structures can be safely designed to withstand such mass movement at the proposed location of the structure."

W. A. Rallen

Acting Director





United States Department of the Interior

3232

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

JUN 25 1976

Memorandum

To: The Secretary

From: Assistant Secretary—Program Development and Budget

Subject: Options for Higher Royalty Rates for Selected Tracts for Proposed OCS Sale #40, Mid-Atlantic

The Geological Survey has prepared a list of the higher valued tracts (a total of 22) for proposed OCS sale #40 at royalty rates of 16 2/3%, and 33 1/3%. I have grouped these tracts into four categories of descending value. They are as follows:

Group	# of Tracts in Group	Mean Value of Tracts (\$ Millions)	
		Royalty Rate	
		16-2/3%	33-1/3%
A(highest valued tracts)	7	39-58	28-42
B(2nd highest valued tracts)	6	24-30	15-21
C(3rd highest valued tracts)	7	16-23	11-13
D(4th highest valued tracts)	2	14-16	8-9
TOTAL	22		

In recent sales PDB has recommended that tracts valued at \$10 million or more at 33-1/3% royalty be offered at that royalty rate. Tracts in group A, B, and C (20 tracts) exceed a mean value of \$10 million when a royalty of 33-1/3% is used. This \$10 million margin should provide adequate protection against reducing the value of the tract to a level where it will either receive no bids or if bid upon, subsequently not be developed. Once production is underway on a lease, premature abandonment can be



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avoided through USGS procedures for royalty reduction (30 CFR 250.12).

3233

The major advantages of higher royalty rates are greater competition for OCS leases by reducing front-end payments.

OPTIONS:

- (1) Group A at 33-1/3% Royalty - This option would raise the royalty from 16-2/3% to 33-1/3% on 7 tracts valued from \$28-42 million.
- (2) Group A and B at 33-1/3% Royalty - 13 tracts - \$15-42 million.
- (3) Group A, B, and C at 33-1/3% Royalty - 20 tracts - \$11-42 million.
- (4) Offer No tracts at a higher Royalty - Under this option all tracts in OCS Sale no. 40 would be offered at a royalty rate of 16-2/3% in addition to a cash bonus.
- (5) Randomly Select 20 Tracts for a Royalty Rate of 33-1/3 percent.

DEPARTMENTAL RECOMMENDATIONS

Assistant Secretary for Program Development and Budget and the Assistant Secretary for Fish, Wildlife and Parks - AS/PDB and AS/FWS recommend Option 3. Under this option 20 tracts valued above \$10 million at 33-1/3% royalty will be offered at that royalty rate.

Assistant Secretary for Land and Water Resources, Assistant Secretary for Energy and Minerals and Director, Bureau of Land Management - AS/LWR, AS/EM, and Director, Bureau of Land Management recommend Option 5. Under this option 20 tracts selected at random will be offered at a royalty rate of 33-1/3 percent instead of 16-2/3 percent. LWR, EM & BLM believe this will offer a possibility for assessing the advantages and disadvantages of higher royalty rates.

The major disadvantage of this Option (#5) is that some of the tracts selected at random may receive no bids at the higher royalty rate, or if successfully bid upon, may not be subsequently developed. This is because these tracts may be of so low value at 16-2/3% royalty that at higher royalty rates they become uneconomic to develop.

/s/

Ronald G. Coleman

DEPARTMENT OF THE INTERIOR
Land Management
NEW JERSEY OUTER CONTINENTAL SHELF
Oil and Gas Lease Sale No. 40, August 17, 1976

1. **Authority.** This notice is published pursuant to the Outer Continental Shelf Lands Act (43 U.S.C. 1331-1343) and the regulations issued thereunder (43 CFR Part 3300).

2. **Filing of Bids.** Sealed bids will be received by the Manager, New York Outer Continental Shelf Office, Bureau of Land Management, at his office in 6 World Trade Center, Suite 660D, New York, New York 10048. Bids may be delivered, either by mail or in person, to the above address until 4:30 p.m., e.s.t., August 16, 1976; or by personal delivery to the Grand Ballroom, the Statler Hilton Hotel, Seventh Avenue at 32nd to 33rd Streets, New York, New York 10001, between the hours of 8:30 a.m., e.s.t., and 9:30 a.m., e.s.t., August 17, 1976. Bids received by the Manager later than the times and dates specified above will be returned unopened to the bidders. Bids may not be modified or withdrawn unless written modification or withdrawal is received by the Manager prior to 9:30 a.m., e.s.t., August 17, 1976. All bids must be submitted and will be considered in accordance with applicable regulations, including 43 CFR Part 3300. The list of restricted joint bidders which applies to this sale was published at 41 FR 14808, April 7, 1976.

3. **Rent, Royalty, and Bonus.** Bids submitted on all tracts to be offered at this sale must be on a cash bonus bid basis. The royalty for all tracts (except the higher royalty tracts) is fixed at 16 2/3 percent. Tracts 40-11, 40-12, 40-13, 40-18, 40-19, 40-20, 40-28, 40-29, 40-32, 40-129, 40-130, 40-140, 40-148, 40-149, and 40-150 are in this sale notice referred to as "higher royalty tracts". The royalty for all higher royalty tracts is fixed at 23 1/2 percent. Leases which may be issued will provide for a yearly rental or minimum royalty of \$8.00 per hectare or fraction thereof.

4. **Method of Bidding.** A separate bid in a sealed envelope, labeled "Sealed Bid for Oil and Gas Lease (insert number of tract), not to be opened until 10:00 a.m., e.s.t., August 17, 1976," must be submitted for each tract. A suggested bid format appears in paragraph 16. Bidders are advised that tract numbers are assigned solely for administrative purposes and are not the same as block numbers found on official protraction diagrams. All bids received shall be deemed submitted for a numbered tract. Bidders must submit with each bid one-fifth of the cash bonus in cash, or by cashier's check, bank draft, certified check or money order, payable to the order of the Bureau of Land Management. No bid for less than a full tract as described in paragraph 12 will be considered. Bidders submitting joint bids

¹ One hectare equals 2.471 acres.

must state on the bid form the proportionate interest of each participating bidder, in a percent to a maximum of five decimal places, as well as submit a sworn statement that the bid is qualified under 43 CFR 3302. The form for this statement to be used in joint bids appears in paragraph 17. Other documents may be required of bidders under 43 CFR 3302.4. Bidders are warned against violation of 18 U.S.C. 1860, prohibiting unlawful combination or incitement of bidders.

5. **Equal Opportunity.** Each bidder must have submitted by 9:30 a.m., e.s.t., August 17, 1976, the certification required by 41 CFR 60-1.7(b) and Executive Order No. 11246 of September 24, 1965, as amended by Executive Order No. 11375, on the Compliance Report Certification Form, Form 1140-8 (November 1973), and the Affirmative Action Representation Form, Form 1140-7 (December 1971).

6. **Bid Opening.** Bids will be opened on August 17, 1976, beginning at 10:00 a.m., e.s.t., in the Grand Ballroom, Statler Hilton Hotel, at the address stated in paragraph 2. The opening of the bids is for the sole purpose of publicly announcing and recording bids received and no bids will be accepted or rejected at that time. If the Department is prohibited for any reason from opening any bid before midnight, August 17, 1976, that bid will be returned unopened to the bidder, as soon thereafter as possible.

7. **Deposit of Payments.** Any cash, checks, drafts, or money orders submitted with a bid may be deposited in a suspense account in the Treasury during the period the bids are being considered. Such a deposit does not constitute and shall not be construed as acceptance of any bid on behalf of the United States.

8. **Withdrawal of Tracts.** The United States reserves the right to withdraw any tract from this sale prior to issuance of a written acceptance of a bid for that tract.

9. **Acceptance or Rejection of Bids.** The United States reserves the right to reject any and all bids for any tract. In any case, no bid for any tract will be accepted and no lease for any tract will be awarded to any bidder unless:

(1) The bidder has complied with all requirements of this notice and applicable regulations;

(2) His bid is the highest valid cash bonus bid; and

(3) The amount of the bid has been determined to be adequate by the United States.

No bid will be considered for acceptance unless it offers a cash bonus in the amount of \$62.00 or more per hectare or fraction thereof.

10. **Successful Bidders.** Each person who has submitted a bid accepted by the United States will be required to execute copies of the lease specified below, pay the balance of the cash bonus bid together with the first year's annual rental and satisfy the bonding requirements of 43 CFR 3304.1 within the time provided in 43 CFR 3302.5.

11. **Protraction Diagram.** The tracts offered at this lease sale, described in paragraph 12 below, may be located on the following Outer Continental Shelf

Official Protraction Diagrams, available for \$2.00 each from the Manager, New York Outer Continental Shelf Office, at the address stated in paragraph 2:

(1) NJ 18-3.

(2) NJ 18-4.

12. **Tract Descriptions:**

OCS OFFICIAL PROTRACTION DIAGRAM
NO. NJ 18-3

[Approved Oct. 21, 1974]

Tract No.	Block	Description	Hectares ¹
40-1	411	AN	2304
40-2	412	AN	2304
40-3	413	AN	2304
40-4	414	AN	2304
40-5	415	AN	2304
40-6	416	AN	2304
40-7	417	AN	2304
40-8	418	AN	2304
40-9	419	AN	2304
40-10	420	AN	2304
40-11	421	AN	2304
40-12	422	AN	2304
40-13	423	AN	2304
40-14	424	AN	2304
40-15	425	AN	2304
40-16	426	AN	2304
40-17	427	AN	2304
40-18	428	AN	2304
40-19	429	AN	2304
40-20	430	AN	2304
40-21	431	AN	2304
40-22	432	AN	2304
40-23	433	AN	2304
40-24	434	AN	2304
40-25	435	AN	2304
40-26	436	AN	2304
40-27	437	AN	2304
40-28	438	AN	2304
40-29	439	AN	2304
40-30	440	AN	2304
40-31	441	AN	2304
40-32	442	AN	2304
40-33	443	AN	2304
40-34	444	AN	2304
40-35	445	AN	2304
40-36	446	AN	2304
40-37	447	AN	2304
40-38	448	AN	2304
40-39	449	AN	2304
40-40	450	AN	2304
40-41	451	AN	2304
40-42	452	AN	2304
40-43	453	AN	2304
40-44	454	AN	2304
40-45	455	AN	2304
40-46	456	AN	2304
40-47	457	AN	2304
40-48	458	AN	2304
40-49	459	AN	2304
40-50	460	AN	2304
40-51	461	AN	2304
40-52	462	AN	2304
40-53	463	AN	2304
40-54	464	AN	2304
40-55	465	AN	2304
40-56	466	AN	2304
40-57	467	AN	2304
40-58	468	AN	2304
40-59	469	AN	2304
40-60	470	AN	2304
40-61	471	AN	2304
40-62	472	AN	2304
40-63	473	AN	2304
40-64	474	AN	2304
40-65	475	AN	2304
40-66	476	AN	2304
40-67	477	AN	2304
40-68	478	AN	2304
40-69	479	AN	2304
40-70	480	AN	2304
40-71	481	AN	2304
40-72	482	AN	2304
40-73	483	AN	2304
40-74	484	AN	2304
40-75	485	AN	2304
40-76	486	AN	2304
40-77	487	AN	2304
40-78	488	AN	2304
40-79	489	AN	2304
40-80	490	AN	2304
40-81	491	AN	2304
40-82	492	AN	2304
40-83	493	AN	2304
40-84	494	AN	2304
40-85	495	AN	2304
40-86	496	AN	2304
40-87	497	AN	2304
40-88	498	AN	2304
40-89	499	AN	2304
40-90	500	AN	2304
40-91	501	AN	2304
40-92	502	AN	2304
40-93	503	AN	2304
40-94	504	AN	2304

OCS OFFICIAL PROTRACTOR DIAGRAM
NO. 13-4

Tract No.	Block	Description	Acres ¹
40-05	001	AN	2004
40-06	002	AN	2004
40-07	003	AN	2004
40-08	004	AN	2004
40-09	005	AN	2004
40-10	006	AN	2004
40-11	007	AN	2004
40-12	008	AN	2004
40-13	009	AN	2004
40-14	010	AN	2004
40-15	011	AN	2004
40-16	012	AN	2004
40-17	013	AN	2004
40-18	014	AN	2004
40-19	015	AN	2004
40-20	016	AN	2004
40-21	017	AN	2004
40-22	018	AN	2004

OCS OFFICIAL PROTRACTOR DIAGRAM
NO. 13-4

(Approved Oct. 21, 1974)

Tract No.	Block	Description	Acres ¹
40-23	019	AN	2004
40-24	020	AN	2004
40-25	021	AN	2004
40-26	022	AN	2004
40-27	023	AN	2004
40-28	024	AN	2004
40-29	025	AN	2004
40-30	026	AN	2004
40-31	027	AN	2004
40-32	028	AN	2004
40-33	029	AN	2004
40-34	030	AN	2004
40-35	031	AN	2004
40-36	032	AN	2004
40-37	033	AN	2004
40-38	034	AN	2004
40-39	035	AN	2004
40-40	036	AN	2004
40-41	037	AN	2004
40-42	038	AN	2004
40-43	039	AN	2004
40-44	040	AN	2004
40-45	041	AN	2004
40-46	042	AN	2004
40-47	043	AN	2004
40-48	044	AN	2004
40-49	045	AN	2004
40-50	046	AN	2004
40-51	047	AN	2004
40-52	048	AN	2004
40-53	049	AN	2004
40-54	050	AN	2004
40-55	051	AN	2004
40-56	052	AN	2004
40-57	053	AN	2004
40-58	054	AN	2004
40-59	055	AN	2004
40-60	056	AN	2004
40-61	057	AN	2004
40-62	058	AN	2004
40-63	059	AN	2004
40-64	060	AN	2004
40-65	061	AN	2004
40-66	062	AN	2004
40-67	063	AN	2004
40-68	064	AN	2004
40-69	065	AN	2004
40-70	066	AN	2004
40-71	067	AN	2004
40-72	068	AN	2004
40-73	069	AN	2004
40-74	070	AN	2004
40-75	071	AN	2004
40-76	072	AN	2004
40-77	073	AN	2004
40-78	074	AN	2004
40-79	075	AN	2004
40-80	076	AN	2004
40-81	077	AN	2004
40-82	078	AN	2004
40-83	079	AN	2004
40-84	080	AN	2004
40-85	081	AN	2004
40-86	082	AN	2004
40-87	083	AN	2004
40-88	084	AN	2004
40-89	085	AN	2004
40-90	086	AN	2004
40-91	087	AN	2004
40-92	088	AN	2004
40-93	089	AN	2004
40-94	090	AN	2004
40-95	091	AN	2004
40-96	092	AN	2004
40-97	093	AN	2004
40-98	094	AN	2004
40-99	095	AN	2004
40-100	096	AN	2004
40-101	097	AN	2004
40-102	098	AN	2004
40-103	099	AN	2004
40-104	100	AN	2004
40-105	101	AN	2004
40-106	102	AN	2004
40-107	103	AN	2004
40-108	104	AN	2004
40-109	105	AN	2004
40-110	106	AN	2004
40-111	107	AN	2004
40-112	108	AN	2004
40-113	109	AN	2004
40-114	110	AN	2004
40-115	111	AN	2004
40-116	112	AN	2004
40-117	113	AN	2004
40-118	114	AN	2004
40-119	115	AN	2004
40-120	116	AN	2004
40-121	117	AN	2004
40-122	118	AN	2004
40-123	119	AN	2004
40-124	120	AN	2004
40-125	121	AN	2004
40-126	122	AN	2004
40-127	123	AN	2004
40-128	124	AN	2004
40-129	125	AN	2004
40-130	126	AN	2004
40-131	127	AN	2004
40-132	128	AN	2004
40-133	129	AN	2004
40-134	130	AN	2004
40-135	131	AN	2004
40-136	132	AN	2004
40-137	133	AN	2004
40-138	134	AN	2004
40-139	135	AN	2004
40-140	136	AN	2004
40-141	137	AN	2004
40-142	138	AN	2004
40-143	139	AN	2004
40-144	140	AN	2004
40-145	141	AN	2004
40-146	142	AN	2004
40-147	143	AN	2004
40-148	144	AN	2004
40-149	145	AN	2004
40-150	146	AN	2004
40-151	147	AN	2004
40-152	148	AN	2004
40-153	149	AN	2004
40-154	150	AN	2004

¹ 1 ha equals 2.471 acres.

13. Lease Terms and Stipulations. Leases issued as a result of this sale will be on Form 3300-1 (May 1976), available from the Manager, New York Outer Continental Shelf Office, at the address stated in paragraph 2. Except as otherwise noted, the following stipulations will be included in each lease resulting from this sale:

Stipulation No. 1. If the Supervisor, having reason to believe that a site, structure, or object of historical or archeological significance, hereinafter referred to as "cultural resource," may exist in the lease area, gives the lessee written notice that the lessee is invoking the provisions of this stipulation, the lessee shall upon receipt of such notice comply with the following requirements:

Prior to any drilling activity or the construction or placement of any structure for exploration or development on the lease, including but not limited to, well drilling and pipeline and platform placement, hereinafter in this stipulation referred to as "operation," the lessee shall conduct site specific surveys, as approved by the Supervisor, to determine the actual existence of an area of special biological significance that may be adversely affected by any lease operation. If such surveys indicate the existence of such an area, the lessee shall: (1) relocate the site of such operation so as not to adversely affect the area identified; or (2) establish, to the satisfaction of the Supervisor, on the basis of the site specific survey, either that such operation will not adversely affect the area identified or that the potential biological resource suggested by the occurrence of the anomaly does not exist.

All data obtained in the course of any biological surveys conducted pursuant to the provisions hereof shall be submitted to the Supervisor with any application by the lessee for drilling or other activity with a copy to the Manager, New York OCS Office. Should the Supervisor determine, contrary to the contentions of the lessee, that the existence of a biological resource which may be adversely affected by such operation is sufficiently established to warrant protection, the lessee shall take no action that may result in any adverse effect on such resource until the Supervisor has given the lessee directions with respect to the resource.

offer in this stipulation referred to as "operation," the lessee shall conduct geophysical surveys to determine the potential existence of any cultural resource that may be affected by such operations. All data produced by such geophysical surveys shall be submitted to the Supervisor to determine if anomalies are present which suggest the existence of a cultural resource that may be adversely affected by any lease operation.

If such anomalies exist the lessee shall: (1) locate the site of such operation so as not to adversely affect the anomaly identified; or (2) establish, to the satisfaction of the Supervisor, on the basis of further archeological investigation conducted by a qualified marine archeological surveyor using such survey equipment and techniques as deemed necessary by the Supervisor, either that such operation will not adversely affect the anomaly identified or that the potential cultural resource suggested by the occurrence of the anomaly does not exist. A report of this investigation prepared by the marine archeological surveyor shall be submitted to the Supervisor for review. Should the Supervisor determine that the existence of a cultural resource which may be adversely affected by such operation is sufficiently established to warrant protection, the lessee shall take no action that may result in an adverse effect on such cultural resource until the Supervisor has given directions as to its disposition.

The lessee agrees that if any site, structure, or object of historical or archeological significance should be discovered during the conduct of any operations on the leased area, he shall report immediately such findings to the Supervisor, and make every reasonable effort to preserve and protect the cultural resource from damage until the Supervisor has given directions as to its disposition.

Stipulation No. 2. If the Supervisor having reason to believe that an area of special biological significance may exist in the lease area, gives the lessee written notice that the lessee is invoking the provisions of this stipulation, the lessee shall upon receipt of such notice comply with the following requirements:

Prior to any drilling activity or the construction or placement of any structure for exploration or development of lease areas including, but not limited to, well drilling and pipeline and platform placement, hereinafter in this stipulation referred to as "operation," the lessee shall conduct site specific surveys, as approved by the Supervisor, to determine the actual existence of an area of special biological significance that may be adversely affected by any lease operation. If such surveys indicate the existence of such an area, the lessee shall: (1) relocate the site of such operation so as not to adversely affect the area identified; or (2) establish, to the satisfaction of the Supervisor, on the basis of the site specific survey, either that such operation will not adversely affect the area identified or that the potential biological resource suggested by the occurrence of the anomaly does not exist.

All data obtained in the course of any biological surveys conducted pursuant to the provisions hereof shall be submitted to the Supervisor with any application by the lessee for drilling or other activity with a copy to the Manager, New York OCS Office. Should the Supervisor determine, contrary to the contentions of the lessee, that the existence of a biological resource which may be adversely affected by such operation is sufficiently established to warrant protection, the lessee shall take no action that may result in any adverse effect on such resource until the Supervisor has given the lessee directions with respect to the resource.

The lessee agrees that if any site, structure, or object of historical or archeological significance should be discovered during the conduct of any operations on the leased area, he shall report such findings to the Supervisor, and make every reasonable effort to preserve and protect the resource from damage until the Supervisor has given the lessee directions with respect to the resource.

Stipulation No. 3. Structures for drilling or production, including pipelines and subsea systems, shall be kept to the minimum necessary for proper exploration, development, and production and, to the greatest extent consistent therewith, shall be placed so as not to interfere unnecessarily with other significant uses of the Outer Continental Shelf, including commercial fishing.

To this end, no structure for drilling or production, including pipelines and subsea systems, may be placed on the Outer Continental Shelf until the Supervisor has determined that the structure is necessary for the proper exploration, development, or production of the lease area and that no reasonable alternative placement would cause less interference with other significant uses of the Outer Continental Shelf, including commercial fishing. The lessee's exploratory and development plans, filed under 30 CFR 250.34, shall identify the anticipated placement and grouping of necessary structures including pipelines and subsea production systems, showing how such placement and grouping will have the minimum practicable effect on other significant uses of the Outer Continental Shelf, including commercial fishing.

Stipulation No. 4. If feasible pipeline rights-of-way can be determined and obtained and, if laying such pipelines is technically and economically feasible, no crude oil production will be transported by surface vessel from offshore production sites to adjacent onshore facilities except in case of emergency. Determinations as to emergency conditions and the technical and economic feasibility of pipeline laying will be made by the Supervisor. Barges will not be used for surface transportation except in emergency situations where the Supervisor determines that the use of no other vessels is feasible.

The lessee specifically reserves the right to require that any pipelines to be used for transporting production from this lease to shore be placed in certain designated areas or corridors.

Wherever technically and economically feasible, all pipelines, including both flow lines and gathering lines for oil and gas, shall be buried to a depth suitable for adequate protection from water currents, storm scouring, fisheries trawling gear, and other uses as determined by the Department of the Interior permitting agency on a case-by-case basis.

Surveillance of all buried pipelines shall be conducted by the lessee at regular intervals to ensure that they remain buried. Surveillance methods utilized shall be those specified in present and future OCS Orders and regulations or as approved by the Department of the Interior permitting agency.

Stipulation No. 5. (To be included only in leases resulting from this sale for tracts 40-75, 40-80, 40-81, 40-87, 40-88, and, 40-94.)

Prior to any drilling activity or the construction or placement of any structure for exploration or development on the lease, including but not limited to, well drilling and pipeline and platform placement, hereinafter in this stipulation referred to as "operation," the lessee shall show, to the satisfaction of the Supervisor, that he has taken all steps practicable to determine the existence of any unexploded ordnance, munitions,

mine or bomb. If any object is found which may be such a device the lessee shall: (1) locate the site of such operation so as not to adversely affect the object identified; or (2) establish to the satisfaction of the Supervisor, on the basis of further investigations, that the operation will not be affected by the object or that the object is not an explosive device. Upon completion of any investigation conducted for the purpose of locating undetonated explosive devices, the lessee shall forward a report and all pertinent data to the Supervisor for his review. Should the Supervisor determine that the existence of such devices may adversely affect the operation, the lessee shall take no action until the Supervisor has given directions as to the conduct of that operation.

The lessee agrees that if any undetonated explosive device should be discovered during the conduct of any operations on the leased area, he shall report immediately the discovery to the Supervisor, and make every reasonable effort to avoid the detonation of the device until the Supervisor has given directions as to its disposition.

Whether or not compensation for such damage or injury might be due under a theory of strict or absolute liability or otherwise, the lessee assumes all risks of damage or injury which occurs in, on, or above the Outer Continental Shelf to any person or persons or to any property of any person or persons including but not limited to a person or persons who are agents, employees or invitees of the lessee, its agents, independent contractors or subcontractors doing business with the lessee in connection with any activities being performed by the lessee in, on, or above the Outer Continental Shelf, if such injury or damage to the person or property occurs during the course of operations on the lessee's behalf, and such injury or damage was in any way related to or caused by the existence or detonation of any unexploded ordnance, munitions, mine or bomb whether or not such ordnance, munitions, mine or bomb was known to exist.

Stipulation No. 6. (To be included only in leases resulting from this sale for tracts 40-1, 40-3 through 40-6, 40-9 through 40-13, 40-15 through 40-21, 40-23 through 40-31, 40-37 through 40-44, 40-50 through 40-55, 40-67 through 40-69, 40-73 through 40-80, 40-84 through 40-88, 40-90 through 40-154, inclusive.)

(a) Whether or not compensation for such damage or injury might be due under a theory of strict or absolute liability or otherwise, the lessee assumes all risks of damage or injury to persons or property, which occurs in, on, or above the Outer Continental Shelf, to any person or persons who are agents, employees or invitees of the lessee, its agents, independent contractors or subcontractors doing business with the lessee in connection with any activities being performed by the lessee in, on, or above the Outer Continental Shelf, if such injury or damage to such person or property occurs by reason of the activities of any agency of the U.S. Government, its contractors or subcontractors, or any of their officers, agents, or employees, being conducted as a part of, or in connection with, the programs and activities of the Commanding Officer, Naval Air Station, Lakehurst, New Jersey. The lessee assumes this risk whether such injury or damage is caused in whole or in part by any act or omission, regardless of negligence or fault, of the United States, its contractors or subcontractors, or any of their officers, agents, or employees.

The lessee further agrees to indemnify and save harmless the United States against all claims for loss, damage, or injury sustained by the lessee and to defend at its

own expense the United States against all claims for loss, damage, or injury sustained by the agents, employees, or invitees of the lessee, its agents, or any independent contractors or subcontractors doing business with the lessee in connection with the programs and activities of the aforementioned military installation, whether the same be caused in whole or in part by the negligence or fault of the United States, its contractors or subcontractors, or any of their officers, agents or employees and whether such claims might be sustained under theories of strict or absolute liability or otherwise.

(b) The lessee agrees to control his own electromagnetic emissions and those of his agents, employees, invitees, independent contractors or subcontractors emanating from individual designated defense warning areas in accordance with requirements specified by the commander of the appropriate onshore military installation, i.e., Commanding Officer, Naval Air Station, Lakehurst, New Jersey, to the degree necessary to prevent damage to, or unacceptable interference with Department of Defense flight, testing or operational activities, conducted within individual designated warning areas.

Necessary monitoring, control, and coordination with the lessee, his agents, employees, invitees, independent contractors or subcontractors, will be effected by the commander of the appropriate onshore military installation conducting operations in the particular warning area. Provided, however, that control of such electromagnetic communication shall in no instance prohibit all manner of electromagnetic communication during any period of time between a lessee, its agents, employees, invitees, independent contractors or subcontractors and onshore facilities.

(c) The lessee, when operating or causing to be operated on its behalf boat or aircraft traffic into the individual designated warning areas shall enter into an agreement with the commander of the appropriate onshore military installation, i.e., Commanding Officer, Naval Air Station, Lakehurst, New Jersey, utilizing an individual designated warning area prior to commencing such traffic. Such agreement will provide for positive control of boats and aircraft operating into the warning areas at all times.

Stipulation No. 7. To provide information to coastal states and thus to assist them in planning for the impact of activities during exploration under this lease, the lessee shall submit, for review and comment, to the Governor of each Mid-Atlantic state a "Notice of Support Activity for the Exploration Program" (herein called "Notice").

For the purpose of this stipulation Mid-Atlantic states include New York, New Jersey, Pennsylvania, Delaware, Maryland, and Virginia. The lessee shall not be required to include privileged information in this Notice. At his discretion, the lessee may submit either a separate Notice for each Exploration Plan submitted on a lease under 30 CFR 250.34, or a Notice for two or more Plans on one or more leases. The Notice shall not be subject to approval or disapproval by the Supervisor.

A copy of the Notice shall be submitted to the Supervisor no later than the date of submission of the Exploration Plan, with a certification that the Notice has already been submitted to the Governor of each Mid-Atlantic state. A lessee who submits a Notice for two or more Exploration Plans shall not be required to supply additional copies of the Notice, but may instead refer to that prior submission. Before the Supervisor approves or disapproves the Exploration Plan, he shall allow at least 30 days from the date of receipt of the certification for the Governors to submit comments on the Notice

to the lessee. Subsequent to submission of the certification, significant changes in estimated support activities will be forwarded by the lessee, as an amendment to the Notice, to the Governor of the Mid-Atlantic states and the Supervisor.

The Notice shall include with respect to the lessee and his contractors:

(1) A description of the onshore and near-shore support facilities, including site and size, expected to be constructed, leased, rented, or otherwise procured in affected areas;

(2) Amount and location of acreage expected to be required within the state for facilities, including the need for storage space for supplies;

(3) An estimate of the frequency of boat and aircraft departures and arrivals, on a monthly basis, and the possible onshore location of terminals;

(4) The approximate number of persons who are expected to be engaged in onshore support activities and transportation, the approximate number of local personnel who are expected to be employed by or in support of the exploration program, and the approximate number of persons who are expected to be employed for the exploration

as of the approximate addition of the population, on a county basis, due to the exploration program and the approximate number of persons needing housing and other facilities;

(5) An estimate of any significant quantity of major supplies and equipment to be procured within the state; and

(7) The onshore address of the lessee's operation officers and of the contractors' offices involved in the exploratory operation.

Stipulation No. 8. (To be included in leases resulting from this sale for tracts 40-61, 40-74, 40-83, 40-89, 40-94, 40-99, 40-103, 40-107, 40-119, and 40-138.)

Portions of this tract may be subject to mass movement of sediment. Emplacement of structures (platforms) or sea floor well-heads for the production or storage of oil or gas will not be allowed on those portions of the tract which may be subject to mass movement of sediments unless or until the lessee has demonstrated to the Supervisor's satisfaction that the potential for mass movement of sediments does not exist or that structures can be safely designed to withstand such mass movement at the proposed location of the structure.

Exclusive high resolution geophysical data used to determine the portions of these tracts which may be subject to mass movement of sediment may be inspected at the office of the Conservation Manager, Eastern Region, Geological Survey, Suite 213, 1725 K Street N.W., Washington, D.C. 20006.

Stipulation No. 9. (To be included in any leases resulting from this sale for the higher royalty tracts listed in Paragraph 3 of this notice.)

(a) The royalty rate on production saved, removed, or sold from this lease is subject to consideration for reduction under the same authority that applies to all other oil and gas leases on the Outer Continental Shelf (30 CFR 250.12(e)), except that the Director, Geological Survey may approve an application for a reduction in royalty on this lease only when it is necessary in order to increase the ultimate recovery of oil and gas and in the interest of conservation. The Director may grant a reduction for only one year at a time. Reduction of royalty rates will not be approved unless production has been underway for one year or more.

(d) All reservoirs underlying this lease which extend into one or more lower royalty rate leases, as indicated by drilling and other information, shall be operated and produced only under a unit agreement including the other lease(s) and approved by the Supervisor. Such a unit agreement shall provide for the fair and equitable allocation of production and costs. The Supervisor shall prescribe the method of allocating production and costs in the event operators are unable to agree on such a method.

(e) Although the royalty rate specified in section 2(h)(1) of this lease or as subsequently modified in accordance with applicable regulations and stipulations is applicable to all production under this lease, not more than 16 2/3% of the production saved, removed or sold from the leased area may be taken as royalty in amount, except as provided in section 6(e); the royalty on any portion of the production saved, removed or sold from the lease in excess of 16 2/3% may only be taken in value of the production saved, removed or sold from the leased area.

Stipulation No. 10. (All leases issued as a result of this sale for tracts other than the higher royalty tracts listed in Paragraph 3 of this notice will contain the following stipulation.)

All reservoirs underlying this lease which extend into a lease covering the higher royalty tracts as indicated by drilling and other information, shall be operated and produced only under a unit agreement covering the lease for the higher royalty tracts and approved by the Supervisor. Such a unit agreement shall provide for a fair and equitable allocation of production and costs. The Supervisor shall prescribe the method of allocating production and costs in the event operators are unable to agree on such a method.

14. **Restriction on Leases.** Some of the tracts offered for lease may fall in areas which may be included in fairways, precautionary zones, or traffic separation schemes. Department of the Army permits are required for construction of any structures in or over any navigable waters of the United States pursuant to Section 10 of the River and Harbor Act of 1899 (30 Stat. 1151; 33 U.S.C. 403) and for artificial islands and fixed structures located on the Outer Continental Shelf in accordance with Section 4(f) of the Outer Continental Shelf Lands Act of 1953 (67 Stat. 463; 43 U.S.C. 1333 (f)). The decision whether to issue a Department of the Army permit on lands which are under mineral lease from the Department of the Interior will be based solely on an evaluation of the impact of the proposed work on navigation and national security. Permit applications and inquiries should be directed to the District Engineer, Philadelphia District, U.S. Army Corps of Engineers.

15. **OCS Orders.** Operations on all leases resulting from this sale will be conducted in accordance with the provisions of all Mid-Atlantic OCS Orders, issued effective July 1, 1976; and any other applicable OCS Order, as it becomes effective. Bidders are advised that the Departments of the Interior and Transportation have entered into a Memorandum of Understanding dated May 6, 1976, concerning the design, installation, operation, and maintenance

of offshore pipelines. Bidders should consult the Department of Transportation for regulations applicable to offshore pipelines under its jurisdiction.

16. **Supported Bid Form.** It is suggested that bidders submit their bids to the

Manager, Pacific Continental Shelf Office, Department of the Interior:

On and Gas Use

The following bid is submitted for an oil and gas lease on the tract of the Outer Continental Shelf specified below:

Tract No.	Total agreed bid	Amount per acre	Amount of cash bonus submitted with bid

3237

PROFESSIONAL INTEREST OF COMPANY SUBMITTING BIDS

Qualification File No. _____ (Company)

(Address)

(Signature, please type signer's name under signature)

17. **Required Joint Bidder's Statement.** In the case of joint bids, each joint bidder must execute the following statement before a notary public and submit it with his bid.

JOINT BIDDER'S STATEMENT

I hereby certify that _____ (entity submitting bid) is eligible under 43 CFR 3302 to bid jointly with the other parties submitting this bid.

(Signature, please type signer's name under signature)

Sworn to and subscribed before me this _____ day of _____ 19____

(Notary public)

State of _____
County of _____

CURT BERKLUND,
Director,
Bureau of Land Management.

Approved:

RONALD G. COLEMAN,
Secretary of the Interior.

[FR Doc.76-20708 Filed 7-14-76; 10:34 am]

[Tentative Sale No. 48]

OUTER CONTINENTAL SHELF OFFSHORE CALIFORNIA

Call for Nominations of and Comments on
Area for Oil and Gas Leasing

Pursuant to the authority prescribed in 43 CFR 3301.3 (1975), nominations are hereby requested for areas on the Outer Continental Shelf offshore California for possible oil and gas leasing under the Outer Continental Shelf Lands Act (43 U.S.C. 1331-1343 (1970)). Nominations will be considered for any or all of that part of the following areas seaward of the submerged lands of the adjacent State.

1. Outer Continental Shelf Leasing Map No. 6A, Channel Islands Area: All blocks and fractional blocks.

2. Outer Continental Shelf Leasing Map No. 6B, Channel Islands Area: All blocks and fractional blocks except for the following:

37N 43W to 45W, all inclusive.
38N 43W to 45W, all inclusive.
39N 43W to 45W, all inclusive.
40N 43W to 45W, all inclusive.
41N 43W to 45W, all inclusive.
42N 44W to 45W, all inclusive.

43N 44W to 45W, all inclusive.
44N 45W to 45W, all inclusive.
50S 65W to 67W, all inclusive.
51N 65W to 69W, all inclusive.
51N 65W, NW 1/4 NW 1/4.
51N 70W, E 1/2 and E 1/4 NW 1/4.
52N 63W to 69W, all inclusive.
52N 70W, E 1/2 and E 1/4 NW 1/4.

3. Outer Continental Shelf Leasing Map No. 6C, Channel Islands Area: All blocks and fractional blocks except the following:

35N 37W, NE 1/4 NE 1/4.
35N 36W, All.
35N 36W, N 1/2 NW 1/4.
33N 35W, All.
34N 35W, N 1/2 NW 1/4; SE 1/4 NW 1/4; SW 1/4 NE 1/4 and N 1/4 SE 1/4.

4. Outer Continental Shelf Leasing Map No. 6D, Channel Islands Area: All blocks and fractional blocks.

5. Outer Continental Shelf Leasing Map No. 6E, Channel Islands Area: All blocks and fractional blocks.

6. Outer Continental Shelf Official Protraction Diagram NI 11-10, San Clemente: All blocks and fractional blocks except the following: 792, 835, 836, 879, 880, 923, 966, 967, and 1010.

All these official leasing maps can be purchased from the Manager, Pacific Outer Continental Shelf Office, 300 North

Los Angeles Street, (Room 7127), Los Angeles, California 90012. The price of the Outer Continental Shelf Official Protection Diagram NI 11-10, San Clemente is \$7.00. The price of the other five maps is \$1.00 each.

All nominations must be described in accordance with the Outer Continental Shelf Official Leasing Maps and Diagrams prepared by the Bureau of Land Management, Department of the Interior and referred to above. Only whole blocks or properly described subdivisions thereof, not less than one quarter of a block, may be nominated.

In addition to requesting nominations of tracts for possible oil and gas leasing within the specified areas, this notice also requests the identification of particular tracts recommended to be either specifically excluded from oil and gas leasing or leased only under special conditions because of conflicting values and environmental concerns. Particular geological, environmental, biological, archeological, socio-economic or other information which might bear upon potential leasing and development of particular tracts is requested where available. Information on these subjects will be used in the preliminary selection of tracts which precedes any final selection by the Director pursuant to 43 CFR 3301.4. This information is requested from Federal, State and local governments; industry; universities; research institutes; environmental organizations; and members of the general public. Comments may be submitted on blocks or subdivisions thereof, as required for nominations, or on all areas or portions thereof as described above. They should be directed to specific factual matters which bear upon the Department's decision whether to make a preliminary selection of particular tracts within these areas for further environmental analysis pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347 (1970)) and possible leasing. Comments relating to general matters which would be applicable to oil and gas operations in any part of the OCS are not sought at this time.

Nominations and comments must be submitted not later than September 7, 1976, in envelopes labeled "Nominations of Tracts for Leasing in the Outer Continental Shelf—offshore California," or "Comments on Leasing in the Outer Continental Shelf—offshore California," as appropriate. They must be submitted to the Director, Attention 720, Bureau of Land Management, Department of the Interior, Washington, D.C. 20240. Copies must be sent to the Area Conservation Manager, Pacific Area, Geological Survey, 7744 Federal Building, 300 North Los Angeles Street, Los Angeles, California 90012, and to the Manager, Pacific Outer Continental Shelf Office, Bureau of Land Management at his address cited above.

This call for nominations and comments does not in any way commit the Department to leasing offshore California. It is an information-gathering component of the Department's leasing procedure.

Tracts will be selected for competitive bidding pursuant to established Departmental procedures and only after compliance with all requirements of the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347 (1970)). This call for nominations recognizes the potential conflicts with military operations within the area. Careful considerations of these military operations will, therefore, be given in the process of selecting tracts for a potential sale. Notice of any tracts selected for competitive bidding will be published in the FEDERAL REGISTER stating the conditions and terms for leasing and the place, date, and hour at which bids will be received and opened.

Dated: July 8, 1976.

George L. Turcott,
Associate Director,
Bureau of Land Management.

Approved: July 12, 1976.

Tom Kleepe,
Secretary of the Interior.

[FR Doc. 76-20600 Filed 7-15-76; 2:48 am]

Fish and Wildlife Service ENDANGERED SPECIES PERMIT

Receipt of Application

Notice is hereby given that the following application for a permit is deemed to have been received under section 10 of the Endangered Species Act of 1973 (Pub. L. 93-205).

Applicant: U.S. Fish and Wildlife Service,
Office of Endangered Species, 500 Gold Avenue,
Albuquerque, New Mexico 87102.

 DEPARTMENT OF THE INTERIOR U.S. FISH AND WILDLIFE SERVICE FEDERAL FISH AND WILDLIFE LICENSE/PERMIT APPLICATION		1. APPLICATION FOR LICENSE ONLY OR ☐ REPORT ON EXISTING LICENSE ☒ PERMIT	
2. APPLICANT, (Name, complete address and phone number of individual, business, agency, or institution for which permit is requested) U. S. Fish and Wildlife Service Office of Endangered Species 500 Gold Avenue Albuquerque, NM 87103 474-2321.		3. BRIEF DESCRIPTION OF ACTIVITY FOR WHICH REQUESTED LICENSE OR PERMIT IS NEEDED: 1. To pursue Houston Toad (<i>Bufo houstonensis</i>), to record calls, photograph individuals, to estimate population status. 2. Collect samples of eggs & developmental states to study and record for species documentation. 3. Remove 1 individual to lab. to photograph & return to field within 24 hours.	
4. IF "APPLICANT" IS AN INDIVIDUAL, COMPLETE THE FOLLOWING: ☐ MR. ☐ MRS. ☐ MISS ☐ DR. DATE OF BIRTH: _____ HEIGHT: _____ WEIGHT: _____ COLOR HAIR: _____ COLOR EYES: _____ PHONE NUMBER WHERE EMPLOYED: _____ SOCIAL SECURITY NUMBER: _____ OCCUPATION: _____ ANY BUSINESS, AGENCY, OR INSTITUTIONAL AFFILIATION HAVING TO DO WITH THE WILDLIFE TO BE COVERED BY THIS LICENSE/PERMIT: _____		5. IF "APPLICANT" IS A BUSINESS, CORPORATION, PUBLIC AGENCY, OR INSTITUTION, COMPLETE THE FOLLOWING: NAME, TITLE, AND PHONE NUMBER OF PRESIDENT, PRINCIPAL OFFICER, DIRECTOR, ETC.: _____ W. O. Nelson, Jr., Regional Director IF "APPLICANT" IS A CORPORATION, INDICATE STATE IN WHICH INCORPORATED: _____	
6. LOCATION WHERE PROPOSED ACTIVITY IS TO BE CONDUCTED South-central and south-eastern Texas.		7. DO YOU HOLD ANY CURRENTLY VALID FEDERAL FISH AND WILDLIFE LICENSE OR PERMIT? ☒ YES ☐ NO (If yes, list license or permit number): _____ Various appropriate FWS permits	
8. CERTIFIED CHECK OR MONEY ORDER IN PAYMENT OF FEE TO THE U.S. FISH AND WILDLIFE SERVICE ENCLOSED IN AMOUNT OF \$ _____		9. IF RECEIVED BY ANY STATE OR FOREIGN GOVERNMENT, DO YOU HAVE THEIR APPROVAL TO CONDUCT THE ACTIVITY YOU REQUEST? ☐ YES ☒ NO (If yes, list jurisdiction and type of approval): _____	
10. ATTACHMENTS. THE SPECIFIC INFORMATION REQUIRED FOR THE TYPE OF LICENSE/PERMIT REQUESTED (SEE 50 CFR 17.22) IS ATTACHED, IT CONSTITUTES AN INTEGRAL PART OF THIS APPLICATION. LIST SECTIONS OF 50 CFR UNDER WHICH ATTACHMENTS ARE PROVIDED: 50 CFR 17.22		11. DESIRED EFFECTIVE DATE: 3/10/76 12. DURATION NEEDED: TWO YEARS	
CERTIFICATION I HEREBY CERTIFY THAT I HAVE READ AND AM FAMILIAR WITH THE REGULATIONS CONTAINED IN TITLE 50, PART 17, OF THE CODE OF FEDERAL REGULATIONS AND THE OTHER APPLICABLE PARTS IN SUBCHAPTER B OF CHAPTER 1 OF TITLE 50, AND I FURTHER CERTIFY THAT THE INFORMATION SUBMITTED IN THIS APPLICATION FOR A LICENSE/PERMIT IS COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF. I UNDERSTAND THAT ANY FALSE STATEMENT HEREIN MAY SUBJECT ME TO THE CRIMINAL PENALTIES OF 18 U.S.C. 1001. SIGNATURE OF APPLICANT: <i>George L. Turcott</i> TITLE: Associate Director DATE: MAR 9 1976			

appearing in the notices section of this issue, under the Department of Health, Education and Welfare, Food and Drug Administration.

MANUFACTURE OF CONTROLLED SUBSTANCES

Registration

By notice dated May 4, 1976, and published in the Federal Register on May 11, 1976; (41 FR 19232-34), Parke, Davis & Company, 188 Howard Avenue, Holland, Michigan 49423, made application to the Drug Enforcement Administration to be registered as a bulk manufacturer of the basic class of controlled substances listed below:

Drug	Schedule
Methaqualone	II
Pentobarbital	II
Methyphenidate	II
Oxycodone	II

No comments or objections having been received, and pursuant to section 303 of the Comprehensive Drug Abuse Prevention and Control Act of 1970, and 21 CFR 1301.54(e), the Deputy Administrator hereby orders that the application submitted by the above firm for registration as a bulk manufacturer of the basic class of controlled substances listed above is granted.

Dated: June 29, 1976.

JERRY N. JENSON,
Deputy Administrator,
Drug Enforcement Administration.
[FR Doc.76-20079 Filed 7-9-76; 8:45 am]

MANUFACTURE OF CONTROLLED SUBSTANCES

Application

Section 303(a) (1) of the Comprehensive Drug Abuse Prevention and Control Act of 1970 (21 U.S.C. 823(a) (1)) states:

The Attorney General shall register an applicant to manufacture controlled substances in schedule I or II if he determines that such registration is consistent with the public interest and with United States obligations under international treaties, conventions, or protocols in effect on the effective date of this part. In determining the public interest, the following factors shall be considered:

(1) maintenance of effective controls against diversion of particular controlled substances and any controlled substance in schedule I or II compounded therefrom into other than legitimate medical, scientific, research, or industrial channels, by limiting the importation and bulk manufacture of such controlled substances to a number of establishments which can produce an adequate and uninterrupted supply of these substances under adequately competitive conditions for legitimate medical, scientific, research, and industrial purposes.

Pursuant to § 1301.43 of Title 21 of the Code of Federal Regulations (CFR), notice is hereby given that on May 19, 1976, Cyclo Chemical Division, Travenol Labs., Inc., 1922 East 64th Street, Los Angeles, CA 90001, made application to the Drug Enforcement Administration to be reg-

istered as a bulk manufacturer of diphenoxylate, a basic class of controlled substance in schedule II.

Pursuant to Section 301 of the Controlled Substances Act (21 U.S.C. 821), and in accordance with 21 CFR 1301.43 (a), notice is hereby given that the above firm has made application to the Drug Enforcement Administration to be registered as a bulk manufacturer of the basic class of controlled substance indicated, and any other such person, and any existing registered bulk manufacturer of diphenoxylate, may file written comments on or objections to the issuance of such registration and may, at the same time, file a written request for a hearing on the application in accordance with 21 CFR 1301.54 in such form as prescribed by 21 CFR 1316.47. Such comments, objections and requests for a hearing may be filed no later than August 19, 1976.

Comments and objections may be addressed to the DEA Federal Register Representative, Office of Chief Counsel, Drug Enforcement Administration, Room 1203, 1405 Eye Street, N.W., Washington, D.C. 20537.

Dated: July 2, 1976.

JERRY N. JENSON,
Deputy Administrator,
Drug Enforcement Administration.
[FR Doc.76-20081 Filed 7-9-76; 8:45 am]

MANUFACTURE OF CONTROLLED SUBSTANCES

Application

Section 303(a) (1) of the Comprehensive Drug Abuse Prevention and Control Act of 1970 (21 U.S.C. 823(a) (1)) states:

The Attorney General shall register an applicant to manufacture controlled substances in schedule I or II if he determines that such registration is consistent with the public interest and with United States obligations under international treaties, conventions, or protocols in effect on the effective date of this part. In determining the public interest, the following factors shall be considered:

(1) maintenance of effective controls against diversion of particular controlled substances and any controlled substance in schedule I or II compounded therefrom into other than legitimate medical, scientific, research, or industrial channels, by limiting the importation and bulk manufacture of such controlled substances to a number of establishments which can produce an adequate and uninterrupted supply of these substances under adequately competitive conditions for legitimate medical, scientific, research, and industrial purposes.

Pursuant to § 1301.43 of Title 21 of the Code of Federal Regulations, notice is hereby given that on May 27, 1976, Wyeth Laboratories, Inc., 611 E. Nield St., West Chester, PA 19380, made application to the Drug Enforcement Administration to be registered as a bulk manufacturer of pethidine, a basic class of controlled substances in schedule II.

Pursuant to Section 301 of the Controlled Substances Act (21 U.S.C. 821), and in accordance with § 1301.43(a) of Title 21 of the Code of Federal Regula-

tions, notice is hereby given that the above firm has made application to the Drug Enforcement Administration to be registered as a bulk manufacturer of the basic class of controlled substances indicated, and any other such person, and any existing registered bulk manufacturer of pethidine, may file written comments on or objections to the issuance of such registration and may, at the same time, file a written request for a hearing on the application in accordance with 21 CFR 1301.54 in such form as prescribed by 21 CFR 1316.47. Such comments, objections and requests for a hearing may be filed no later than August 19, 1976.

Comments and objections may be addressed to the DEA Federal Register Representative, Office of Chief Counsel, Drug Enforcement Administration, Room 1203, 1405 Eye Street, N.W., Washington, D.C. 20537.

Dated: June 29, 1976.

JERRY N. JENSON,
Deputy Administrator,
Drug Enforcement Administration.
[FR Doc.76-20082 Filed 7-9-76; 8:45 am]

Law Enforcement Assistance Administration

NATIONAL ADVISORY COMMITTEE ON CRIMINAL JUSTICE STANDARDS AND GOALS

Meeting

This is to provide notice of meeting of the Disorders and Terrorism Task Force of the National Advisory Committee on Criminal Justice Standards and Goals.

The Disorders and Terrorism Task Force will be meeting at the Four Seasons Motor Inn, 2886 S. Circle Drive, Colorado Springs, Colorado on July 29 and 30, 1976. The meeting will be open to the public.

Meeting Times: July 29—4 to 6:30 p.m. July 30—9 a.m. until adjournment.

Discussion will focus on the review and editing of the final chapters of the Task Force Report.

For further information, contact William T. Archey, Director, Policy Analysis Division, Office of Planning and Management, 653 Indiana Avenue, N.W., Washington, D.C.

JAY A. BROZOST,
Attorney-Advisor,
Office of General Counsel.
[FR Doc.76-20086 Filed 7-9-76; 8:45 am]

DEPARTMENT OF THE INTERIOR

Geological Survey

MID-ATLANTIC AREA

Final Orders; (1 through 5, 7, and 12)

Notice is hereby given that pursuant to 30 CFR 250.11, the Chief, Conservation Division, U.S. Geological Survey, has approved Outer Continental Shelf (OCS) Orders for the Mid-Atlantic as set forth below. These Orders for oil and gas drilling and producing operations were published in the Federal Register, Vol. 40, No. 226, Monday, December 8, 1975.

with a solicitation for comments and suggestions. Comments were received from the following organizations:

Industry	State	Federal agencies
AMOCO Oil Co.	Connecticut	
Chevron Oil Co.	Delaware	
Exxon U.S.A.	Maine	
Gulf Energy and	Maryland	
Mobil—U.S.		
Offshore Operators	Massachusetts	
Committee		
Phillips Petroleum Co.	New York	
Shell Oil Co.	Pennsylvania	
Sun Oil Co.	Virginia	
		Bureau of Land Management, Environmental Protection Agency, Fish and Wildlife, National Oceanic and Atmospheric Administration.

All comments were reviewed, and appropriate suggestions were included in a second draft of the Orders which was presented to representatives of the Governors of the States listed above. Additional comments and suggestions of the States were incorporated into the final version of the Orders where appropriate.

In order to inform the public of the need for new regulatory requirements and to provide adequate response to comments on the proposed regulations, we have published below a summary of all of the comments received, our rationale for accepting or rejecting the suggestions of the commenters, and the final revision of the Orders.

The Orders listed below will be effective July 1, 1976.

Order No. 1—"Marking of Wells, Platforms, and Structures".

Order No. 2—"Drilling Procedures".

Order No. 3—"Plugging and Abandonment of Wells".

Order No. 4—"Suspensions and Determination of Well Productivity".

Order No. 5—"Subsea Safety Devices".

Order No. 7—"Pollution and Waste Disposal".

Order No. 12—"Public Inspection of Records".

Order Nos. 6, 8, 9, 11, 13, 14, and 15 concerning lease development and production are being drafted and will be proposed for publication at a later date.

For the purpose of these Orders, the Mid-Atlantic Area shall include those lands subject to Federal oil and gas leasing on the OCS between 40° N. latitude and 37° N. latitude.

The final Orders are published in their entirety below. Copies of the Orders in booklet form may be obtained from the Conservation Manager, U.S. Geological Survey, Conservation Division, 1725 K Street, NW., Washington, D.C. 20244.

W. A. RADLINSKY,
Acting Director.

OSC ORDER NO. 1

SUMMARY OF COMMENTS ON DRAFT MID-ATLANTIC OCS ORDER AND U.S. GEOLOGICAL SURVEY (USGS) DISCUSSIONS

PARAGRAPH NOS. 1 AND 2

Comments. Commenters were concerned with a difference between the platform marking requirements of the proposed Mid-Atlantic Orders and the marking requirements in the Gulf of Mexico. It was believed that the use of different formats for individual areas would cause confusion.

USGS Rationale. The USGS agrees with these comments and has changed paragraph Nos. 1 and 2 of the Order to reflect these recommendations.

PARAGRAPH NO. 4

Comments. A change was requested in this paragraph requiring all subsea objects to be marked in accordance with U.S. Coast Guard regulations. Other comments expressed concern that Coast Guard regulations would not be sufficient to protect fishing operations from submerged objects.

USGS Rationale. Since the current U.S. Coast Guard regulations do not provide for marking objects which are more than 85 feet below the surface, the Order was revised to require adequate marking of all subsea objects which could be a detriment to commercial fishing regardless of depth.

DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

CONSERVATION DIVISION EASTERN AREA

MID-ATLANTIC

OCS ORDER NO. 1

Effective: July 1, 1976.

IDENTIFICATION OF WELLS, PLATFORMS, STRUCTURES, AND SUBSEA OBJECTS

This Order is established pursuant to the authority prescribed in 30 CFR 250.11 and in accordance with 30 CFR 250.37.

The operator shall comply with the following requirements. All departures from the requirements specified in this Order must be approved pursuant to 30 CFR 250.12(b).

1. **Identification of Fixed Platforms or Structures.** Platforms and structures shall be identified at two diagonal corners by a sign with letters and figures not less than 30 centimetres (12 inches) in height with the following information: The name of lease operator, the area name shown on OCS Official Protraction Diagrams (or, where no name has been assigned, the Protraction Diagram number), the block number in which the platform or structure is located, and the platform or structure designation. The information shall be abbreviated as in the following example:

The Blank Oil Company operates "G" platform on Block 999 of the Salisbury Area.

The identifying sign on the platform would indicate: BOC-SAL-999-G.

2. **Identification of Nonfixed Platforms or Structures.** Floating semi-submersible platforms, bottom-setting mobile rigs, and drilling ships shall be identified by one sign with letters and figures not less than 30 centimetres (12 inches) in height affixed to the derrick so as to be visible from off the vessel and containing the following information: The name of the lease operator, the area designation based on OCS Official Leasing Maps, the block number, the OCS lease number, and the well number.

3. **Identification of Wells.** The OCS lease and well number shall be painted on, or a sign affixed to, each singly completed well. In multiple completed wells, each completion shall be individually identified at the well head. All identifying signs shall be maintained in a legible condition.

4. **Identification of Subsea Objects.** All subsea objects resulting from lease operations, and presenting a hazard to navigation or to deployment of commercial fishing devices, shall be identified with navigational markings. Such identification shall be in accordance with a design approved by the Supervisor and shall not be inconsistent with applicable U.S. Coast Guard regulations. These navigational markings shall be maintained

on-site and operable at all times so long as the obstruction remains.

HARRY A. DUFOUR,
Area Oil and Gas Supervisor.

Approved:

RUSSELL G. WAYLAND,
Acting Chief, Conservation Division.

SUMMARY OF COMMENTS ON DRAFT MID-ATLANTIC OCS ORDER AND U.S. GEOLOGICAL SURVEY (USGS) DISCUSSIONS

OCS ORDER NO. 2

PREAMBLE TO THE ORDER

Comment. A comment was made which stated that "the Orders should state clearly what geologic and engineering information will be deemed sufficient to enable field rules to be established."

USGS Rationale. The Order was not revised. The determination of field rules is based on an evaluation of all geologic and engineering data. The determination is made on a case-by-case basis.

NEW PARAGRAPH NO. 1

Comments. None.

USGS Rationale. A new paragraph No. 1, entitled "Drilling Platform and Vessels," was added stating general requirements for compatibility of platforms and drilling vessels with the oceanographic and weather conditions of the proposed area, requesting evidence of the fitness of the drilling facility to perform the planned operations, stating requirements for pre-drilling inspection, and stating requirements for the collection and reporting of oceanographic, meteorological, and performance data. All subsequent paragraphs were renumbered.

PARAGRAPH NO. 2

Comments. Comments received generally referred to eliminating the requirement to run temperature or cement bond logs in instances where there were indications of improper cementing on surface, intermediate, and production casing strings.

USGS Rationale. The Order was not revised. The question of actual placement of cement is the key to the verification of cementing and the enforcement of the Order. Transportation surveys and cement bond logs are the only tools available for documenting the tops of the cement and for indicating the likelihood of adequate hydraulic seals.

SUBPARAGRAPH 2.B.(2)

Comments. It was suggested that an additional statement be added immediately following the first paragraph of 2.B.(2), stating: "The identity of the freshwater sands to be protected by this procedure will conform with those specified by the lessee under requirements of Title 30, Part 250., § 250.34 ("Drilling and Development Programs") in the prescribed submission of the "exploratory drilling plan," the "Development plan," and the "drilling application."

USGS Rationale. The Order was not revised. The information that would be submitted in accordance with Part 250.34 will be the subject of an additional OCS Order. The identity of freshwater sands will be determined by available information, either from State, in-house, or pub-

ished information, prior to drilling. Subsequent information determined by drilling will be used to augment this historical base. Any information concerning freshwater sands which is recorded on Applications for Permits to Drill will be available in accordance with OCS Order No. 12.

SUBPARAGRAPH 2.B.(2), PARAGRAPH 2

Comments. It was proposed that the surface casing be cemented to the ocean floor when the casing shoe is set at less than 460 metres (1,500 feet).

USGS Rationale. The Order was not revised. The Order as written requires that if the surface casing is set at less than 460 metres (1,500 feet), a quantity of cement is required to be used that would be sufficient to provide cement from the casing shoe to the ocean floor.

Comment. An additional comment under this paragraph concerned pressure testing the formation below the surface casing shoe and inquired as to what "subsequent tests" are required.

USGS Rationale. The Order was not revised. The pressure test specified by the Order is a minimum requirement.

Optional subsequent pressure tests may be performed at the operator's discretion; however, the Order requires that these subsequent pressure tests be recorded on the driller's log so that the data from all tests may be used to determine the depth and maximum mud weight to be used in drilling the intermediate hole.

SUBPARAGRAPH 2.B.(3)

Comments. Several commenters recommended deleting the third sentence in this paragraph which stipulated that the District Supervisor may require an additional casing string for the initial wells in an area or where abnormal pressures are anticipated. The commenters suggested the sentence was redundant since the Supervisor already has this authority.

USGS Rationale. The Order was not revised. It is believed necessary to state the District Supervisor's authority to require an additional casing string under certain conditions, i.e., anticipated abnormal pressures or in wildcat wells. By restating this authority, there can be no misunderstanding as to the type of criteria which will control its use.

Comments. One commenter suggested the phrase "known to contain oil" be changed to read "known to, or suspected to, contain oil."

USGS Rationale. The criteria and procedures described in this Section for determining the required setting depth of the conductor and surface casing would not be improved by adding "or suspected," as suggested by the commenter. The option of the District Supervisor to require an additional (a third) string of casing and to specify its exact setting depth is addressed in the first paragraph of the section. If the Supervisor has reason to believe that abnormally pressured formations may be encountered, based upon operational experience of others in the area and/or his thorough technical

review of submitted and on hand geologic, geophysical and engineering interpretations, he will exercise his option of specifying the setting depth of casing strings or require the setting of an additional casing string. On the other hand, if no advance information is available upon which to suspect the presence of a geologic hazard such as an abnormally pressured formation, the operator is still required to set casing upon encountering such a formation. The operator will use monitoring equipment such as mud weight indicators and/or pore pressure calculations to determine the presence of these formations.

SUBPARAGRAPH 2.C.

Comments. It was proposed that minimum criteria for establishing when intermediate casing must be set should be included in this paragraph.

USGS Rationale. In response to comments and to explicitly document the minimum criteria to be employed in determining the intermediate casing setting depth, language has been added to clarify the use of formation pressure tests.

It is recognized that additional minimum criteria for the length of a column of cement should be specific for the intermediate casing; accordingly, a sentence was added requiring at least 500 feet above the casing shoe.

SUBPARAGRAPH 2.F.

Comments. Subparagraph 2.F. was renumbered as paragraph 3 since the subject matter, Directional Surveys, is not directly related to well casing and cementing. This revision adds to the clarity of the organization of the Order. Comments regarding directional surveys in vertical wells recommended that inclination surveys be taken each 300 metres (1,000 feet) instead of each 150 metres (500 feet).

USGS Rationale. The Order was not revised. Obtaining inclination data at 150-metres (500 feet) intervals provides a closer control on the location of the bottom of the well. We believe that in a new drilling area this closer control is justified.

Comments. It was requested that dipmeter surveys be acceptable for the required inclination surveys.

USGS Rationale. The Order was not revised. The language of the Order would allow the use of dipmeter surveys since the data will include inclination and azimuth.

SUBPARAGRAPH 4.A.(1)

Comments. Commenters pointed out that blind shear rams are used on floating drilling vessels with subsea blowout-preventer stacks; blind rams are normally used on jack-ups, fixed platforms, and other drilling rigs.

USGS Rationale. Blind-shear rams are necessary only in operations where it may be required to move the vessel away from the location; drilling equipment such as a jack-up rig or a bottom setting platform, which cannot be moved from the location in an emer-

gency, the stack is located on the drilling facility; therefore, the blind-shear rams would not be needed. Paragraph 4.A.(1) was revised accordingly.

Comments. One commenter suggested that a minimum margin of safety be specified for blowout preventers.

USGS Rationale. The Order was not revised. Factors of safety are inherent in the definition of "working pressure." Blowout preventers with maximum working pressures 2,000, 3,000, and 5,000 psi are hydrotested to 200 percent of working pressure, and those with working pressures of 10,000 and 15,000 psi are hydrotested to 150 percent of working pressure in accordance with API Standard 6A.

SUBPARAGRAPH 4.A.(1) (a)

Comments. It was suggested that the paragraph be rewritten for clarity and to provide two separate pumping systems. One system to be either electric or air pump powered; the second system would include an independent source of air, an independent electrical system, or a nitrogen reserve. The reserve system must contain sufficient energy to close all blowout preventers and hold them closed.

USGS Rationale. By inserting the word "other," the Order permits an alternate power source for charging the accumulator backup system.

SUBPARAGRAPH 4.A.(1) (c)

Comments. Some commenters considered that the requirement for three adjustable chokes in the choke manifold was excessive.

USGS Rationale. The Order was not revised. The intent of requiring a minimum of three chokes is to allow for destructive erosion caused by the abrasive effect of produced sand. When the chokes are staged with one manually adjustable choke and one hydraulically adjustable choke in series, the other adjustable choke is available as a spare in the event of erosion of the first-stage choke.

Comments. Commenters were also concerned about the piping arrangement which directed flow from the BOP choke manifold to production facilities or storage and indicated that this can be a dangerous practice.

USGS Rationale. This recommendation is concurred with by the USGS, and the paragraph has been changed accordingly.

SUBPARAGRAPH 4.A.(1) (g)

Comments. There were several objections to automatic actuation of annular-type blowout preventers. Further, the addition of an automatic actuating installation would unduly complicate the control system.

USGS Rationale. The original intent of this requirement was to provide a backup system for the actuation of annular type preventers. The revision clearly states this intent. We acknowledge the statement of the commenter that there are no proven automatic actuation systems. The new wording requires an alternate means of closure and

permits the choice of the latest technology to be used.

SUBPARAGRAPH 4.A.(1) (h)

Comments. It was suggested that this paragraph be revised for clarity.

USGS Rationale. The wording of this paragraph was changed to make it clear that the piping upstream of and including the choke manifold must have a pressure rating at least equal to that required of the blowout preventers. The new wording permits the operator the option of using a blowout preventer with a higher pressure than required and using piping to match the required working pressure.

SUBPARAGRAPH 4.A.(2) (b)

Comments. Commenters recommended that the phrase "full-opening drill string safety valve" be changed to "an essentially full opening drill string safety valve."

USGS Rationale. The words "an essentially" were added to the description of the full-opening drill string safety valve requirement to allow for safety valve designs which require internal diameters to be reduced less than the ID of the tool joints to meet the strength requirements. The slight reduction in cross sectional area would not reduce the flow capacity significantly.

SUBPARAGRAPH 4.A.(2) (c)

Comments. Concern was expressed regarding the use of a "socket-type full-opening safety valve," and pointed out the advantages of the drill string safety valve over the socket-type tool.

USGS Rationale. Further study by the USGS of this valve has indicated that its required use may not be an additional safety feature as the socket-type full-opening valve is cumbersome, requires two to three men to install, and cannot be run through the blowout preventers. A better procedure would be to install the drill string safety valve. The Order was revised accordingly.

SUBPARAGRAPH 4.B

Comments. It was recommended that the diverter system lines be reduced from 15 to 10 centimetres (6" to 4") on the basis that the smaller size diverter line has been used in another OCS area.

USGS Rationale. The Order was not revised. Comparing the unexplored Mid-Atlantic Area to the mature Gulf of Mexico Area is not recognized as a valid argument. Because of the uncertainties associated with the formation pressures and fluid delivery rates in a frontier Area such as the Mid-Atlantic, it is not unreasonable to add a degree of safety by requiring that a diverter system be equivalent in cross section area to two 15-centimetre lines.

A new sentence was added to the end of this paragraph that requires the operator to make all seismic data and any interpretation of geologic hazards available to the Supervisor. This requirement will insure that the Supervisor has this key information available before approving shallow casing setting depths.

SUBPARAGRAPH 4.D.(1)

Comments. Change "blind shear rams" to "blind rams" to be consistent with subparagraph 4.A.(1).

USGS Rationale. Same rationale as subparagraph 4.A.(1).

SUBPARAGRAPH 4.E.(1)

Comments. Same as subparagraph 4.D.(1).

USGS Rationale. Same rationale as subparagraph 4.A.(1).

SUBPARAGRAPH 4.F.(1)

Comments. Objections were made on the requirement to pressure-test the blowout preventers from each control station once each week because such procedures may cause excessive wear on the sealing elements.

USGS Rationale. Paragraph 4.F.(1) (c) was revised by replacing the phrase "from each control station," with "while conducting drilling operations." This wording more clearly expresses the requirement for a weekly pressure test. The operation of the alternate control station is verified during the actuation test required by paragraph (2) (as revised).

SUBPARAGRAPH 4.F.(2)

Comments. One comment suggested rewording the first and second sentences of this paragraph.

USGS Rationale. This paragraph was revised to include the requirement to actuate pipe rams once each day and to actuate the blind rams while out of the hole once each trip.

The wording of the requirements for functional testing and checking the control station (primary and remote) was changed to improve understanding and provide for daily checks. These requirements are considered minimum safe operating practices.

SUBPARAGRAPH 5.A.

Comments. It was suggested that the third paragraph under 5.A be deleted, since the pressure at which fluids should be bled off the top of the casing string during a well control operation depends on a number of factors.

USGS Rationale. The Order was not revised. The intent and the language of this paragraph do not specify a rigid rule as to when pressure should be bled from the casing. The requirement is to have this information readily available to the driller to avoid errors by applying excessive pressure to the casing.

SUBPARAGRAPH 5.B.

Comments. A revision of the second sentence of this paragraph was requested to provide for exceptions to derrick floor indicators.

USGS Rationale. Language was added to this paragraph to set minimum requirements regarding mud-test equipment, mud tests, and frequency of tests. While these requirements are considered minimum, safe operating practices, the requirements of testing in conformance with API RP 12B will also provide a consistent reporting format.

SUBPARAGRAPH 5.B.(4)

Comments. Comments suggested that the gas-detection indicator on the derrick floor be replaced by a continuous telephone connection between the derrick floor and the mud logging unit.

USGS Rationale. The Order was not revised. The requirement for a derrick floor indicator for the gas-detection equipment is to provide a backup system for the telephone communication system with the mud logging compartment. The derrick floor indicator is to alert the driller immediately of the presence of gas in the mud returns. The telephone communication system is a supplement to the first signal of the presence of gas.

SUBPARAGRAPH 5.C

Comment. One comment suggested that the approved minimum quantities of drilling mud should either be listed or referred to in the operating Orders.

USGS Rationale. This paragraph was revised to state the minimum quantities of mud required.

Comments. Objections were made to the requirement of stating in the Application for Permit to Drill the minimum quantities of mud material, including weighting materials, to be maintained at the drill site for emergency use.

USGS Rationale. Although it is recognized that amounts of mud may vary during different drilling operations, submission of this data in advance of drilling will allow both the operators and the Geological Survey to agree on proposed mud quantities. This will prevent any misunderstanding as to the Geological Survey requirements for each well.

If, during an inspection of operations, it is indicated that insufficient quantities of mud are on location, operations may be suspended until this situation is rectified.

PARAGRAPH No. 6

Paragraph No. 4 was renumbered to be paragraph No. 6 and was revised to state the responsibility of the operator for 24-hour supervision of operations and the requirement for weekly blowout-preventer drills.

PARAGRAPH No. 7

All comments regarding hydrogen sulfide have been considered and included as appropriate in U.S. Geological Survey Outer Continental Shelf Standard No. 1.

Section 5, Hydrogen Sulfide (renumbered Section 7), was revised to reference U.S. Geological Survey Outer Continental Shelf Standard No. 1 (GSS-OCS-1), "Safety Requirements for Drilling Operations in a Hydrogen Sulfide Environment."

PARAGRAPH No. 8

A new Paragraph No. 8, "Critical Operations and Curtailment Plans," was added. The requirement for submission of documented critical operations and curtailment plans has been added to insure adequate planning on the operator's part and to provide the Supervisor with the necessary information to assist and

coordinate emergency actions. This revision was generated internally and not as a response to comments.

DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

CONSERVATION DIVISION EASTERN AREA

MID-ATLANTIC

OCG ORDER NO. 2

Effective: July 1, 1978.

Drilling Procedures

This Order is established pursuant to the authority prescribed in 30 CFR 250.11. All exploratory and development wells drilled for oil and gas shall be drilled in accordance with 30 CFR 250.34, 250.41, 250.91, and the provisions of this Order which shall continue in effect until field drilling rules are issued. When sufficient geologic and engineering information is obtained through exploratory drilling, operators may make application or the Area Supervisor may require an application for the establishment of field drilling rules. After field drilling rules have been established by the Area Supervisor, development wells shall be drilled in accordance with such rules.

All wells drilled under the provisions of this Order shall have been included in an exploratory or development plan for the lease as required under 30 CFR 250.34. Each Application for Permit to Drill (Form 9-331C) shall include all information required under 30 CFR 250.91, and shall include a notation of any proposed departures from the requirements of this Order. All departures from the requirements specified in this Order shall be subject to approval pursuant to 30 CFR 250.12(b).

The operator shall comply with the following requirements. All applications for approval under the provisions of this Order shall be submitted to the appropriate District Supervisor. References in this Order to approvals, determinations, or requirements are to those given or made by the Area Supervisor or his delegated representative.

1. Drilling platforms and vessels. A. All drilling platforms and drilling vessels shall be capable of withstanding the hydrostatic and meteorological conditions for the proposed work or operations. The operator must furnish evidence of the fitness of the drilling platform or vessel to perform the planned drilling operation at the proposed drilling location. Applications for drilling from mobile drilling platforms and drilling vessels shall include the following:

(1) Design, drawings, equipment specifications, and performance data.
(2) Operational criteria and a critical operations plan as described in Section 8 of this Order.

(3) Environmental conditions expected.
(4) Current classification or certification of fitness with operational limitations.

B. Prior to commencing operations, all drilling platforms and drilling vessels shall be given a complete inspection by a representative of the U.S. Geological Survey to insure compliance with OCS Orders and regulations.

C. Operators shall collect and report oceanographic, meteorological, and performance data during the period of operations. The type of information and the method of collecting shall be set forth in the proposed plan of operations.

2. Well casing and cementing. All wells shall be cased and cemented in accordance with the requirements of 30 CFR 250.41(a) (1), and the Application for Permit to Drill shall include the casing design safety factors for collapse, tension, and burst. In cases

where cement has filled the annular space back to the ocean floor, the cement may be washed out or displaced to a depth not exceeding 12 metres (40 feet) below the ocean floor to facilitate casing removal upon well abandonment. For the purpose of this Order, the several casing strings in order of normal installation are drive or structural, conductor, surface, intermediate, and production casing.

For the surface, intermediate, and production casing strings, if there are indications of improper cementing such as lost returns, cement channelling, or mechanical failure of equipment, the operator shall cement or make the necessary repairs and run a temperature or cement bond log to verify that the casing has been adequately cemented.

The design criteria for all wells shall consider all pertinent factors for well control, including formation fracture gradients and pressures and casing setting depths. All casing, except drive pipe, shall conform to the specifications contained in "API Spec 5A—Thirty-second Edition, March 1973—Casing, Tubing, and Drill Pipe," as amended by supplement 2, March 1973, or other supplements thereto as approved by Area Supervisor. shall be new pipe or reconditioned used pipe that has been tested to insure that it will meet API specifications for new pipe.

A. Drive or structural casing. This casing shall be set by drilling, driving, or jetting to a minimum depth of 30 metres (100 feet) below the ocean floor or to such depth approved by the Supervisor, required to support unconsolidated deposits and to provide hole stability for initial drilling operations. If this portion of the hole is drilled, the drilling fluid shall be of a type that is in compliance with the liquid disposal requirements of OCS Order No. 7, and a quantity of cement sufficient to fill the annular space back to the ocean floor shall be used.

B. Conductor and surface casing. Casing design and setting depths shall be based upon all engineering and geologic factors, including the presence or absence of hydrocarbons or other potential hazards and water depths.

(1) Conductor casing. This casing shall be set at a depth in accordance with paragraph 2B(3) below. A quantity of cement sufficient to fill the annular space back to the ocean floor shall be used.

(2) Surface casing. This casing shall be set at a depth in accordance with paragraph 2B(3) below and cemented in a manner necessary to protect all freshwater sands and provide well control until the next string of casing is set.

This casing shall be cemented with a quantity sufficient to fill the calculated annular space to at least 400 metres (1,500 feet) above the surface casing shoe and at least 90 metres (107 feet) inside the conductor casing or as approved by the District Supervisor. After drilling a maximum of 30 metres (100 feet) below the surface casing shoe, a pressure test shall be obtained to aid in determining a formation fracture gradient either by testing to formation leak-off or by testing to a predetermined equivalent mud weight. The results of this test and any subsequent tests of the formation shall be recorded on the driller's log and used to determine the depth and maximum mud weight to be used in drilling the intermediate hole.

(3) Conductor and surface casing setting depths. These strings of casing shall be set at the depths specified below, subject to approved variation to permit the casing to be set in a competent bed, or through formations determined desirable to be isolated from the well by pipe for safer drilling operations:

Provided, however, That the conductor casing shall be set immediately prior to drilling into formations known to contain oil or gas, or, if unknown, upon encountering such formations. These casing strings shall be run and cemented prior to drilling below the specified setting depths. For those wells which may encounter abnormal pressure or conditions and for the initial wells in an area, the District Supervisor may prescribe an additional casing string and the exact setting depths. Except as otherwise may be prescribed, conductor casing setting depths shall be between 90 metres (295 feet) and 300 metres (984 feet) (TVD below ocean floor), and surface casing setting depths shall be between 300 metres (984 feet) and 1,400 metres (4,592 feet) (TVD below ocean floor).

Engineering, geophysical, and geologic data used to substantiate the proposed setting depths of the conductor and surface casings (such as estimated fracture gradients, pore pressures, shallow hazards, etc.) shall be furnished with the Application for Permit to Drill.

C. Intermediate casing. One or more strings of intermediate casing shall be set when required by anticipated abnormal pressure, mud weight, sediment, and other well conditions. The proposed setting depth for intermediate casing will be based on the pressure tests of the exposed formation immediately below the surface casing shoe or on subsequent pressure tests. If, before reaching the proposed setting depth, the mud weight has been increased to within 0.05 kg/dm³ (0.5 ppg) of the equivalent mud weight of the most recent pressure test of the formation below the surface casing shoe, the operator shall discontinue drilling and set an intermediate casing string.

A quantity of cement sufficient to cover and isolate all hydrocarbon zones and to isolate abnormal pressure intervals from normal pressure intervals shall be used. Sufficient cement shall be used to provide annular fill-up to a minimum of 150 metres (492 feet) above the zones to be isolated or 150 metres (492 feet) above the casing shoe in cases where zonal coverage is not required. If a liner is used as an intermediate string, the cement shall be tested by fluid entry or pressure test to determine whether a seal between the liner top and next larger string has been achieved. The test shall be recorded on the driller's log. When such liner is used as production casing, it shall be extended to the surface and cemented to avoid surface casing being used as production casing.

D. Production casing. This string of casing shall be set before completing the well for production. It shall be cemented in a manner necessary to cover or isolate all zones which contain hydrocarbons, but in any case, a calculated volume sufficient to fill the annular space at least 150 metres (492 feet) above the uppermost productive hydrocarbon zone must be used. When a liner is used as production casing, the testing of the seal between the liner top and the next larger string shall be conducted as in the case of intermediate liners. The test shall be recorded on the driller's log.

E. Pressure-testing of casing. Prior to drilling the plug after cementing, all casing strings, except the drive or structural casing, shall be pressure-tested as shown in the table below. The test pressure shall not exceed the internal yield pressure of the casing. The surface casing shall be tested with water in the top 30 metres (100 feet) of the casing. If the pressure declines more than 10 percent in 30 minutes, or if there is other indication of a leak, corrective measures shall be taken until a satisfactory test is obtained.

Casing	Minimum surface pressure
Conductor	1400 kilopascals (kPa) (203 psi).
Surface	6900 kPa (1000 psi).
Intermediate	10,400 kPa (1508 psi) or 5
Liner, and	kPa/m (0.22 psi/ft.),
Production	whichever is greater.

After cementing any of the above strings, drilling shall not be commenced until a time lapse of eight hours under pressure for conductor casing string or 12 hours under pressure for all other strings. Cement is considered under pressure if one or more float valves are employed and shown to be holding the cement in place or when other means of holding pressure are used. All casing pressure tests shall be recorded on the driller's log.

3. Directional Surveys. Wells are considered vertical if inclination does not exceed three degrees from the vertical. Inclination surveys shall be obtained on all vertical wells at intervals not exceeding 150 metres (492 feet) during the normal course of drilling.

Wells are considered directional if inclination exceeds three degrees from the vertical. Directional surveys giving both inclination and azimuth shall be obtained on all directional wells at intervals not exceeding 150 metres (492 feet) during the normal course of drilling and at intervals not exceeding 30 metres (100 feet) in all angle change portions of the hole.

On both vertical and directional wells, directional surveys giving both inclination and azimuth shall be obtained at intervals not exceeding 150 metres (492 feet) prior to, or upon, setting surface or intermediate casing, liners, and at total depth.

Composite directional surveys shall be filed with the District Supervisor. The interval shown will be from the bottom of conductor casing, or, in the absence of conductor casing, from the bottom of drive or structural casing to total depth. In calculating all surveys, a correction from true north to Universal Transverse Mercator-Grid north shall be made after making the magnetic to true north correction.

4. Blowout prevention equipment. Blowout preventers and related well-control equipment shall be installed, used, and tested in a manner necessary to insure well control. Prior to drilling below the drive pipe or structural casing and until drilling operations are completed, blowout prevention equipment shall be installed and maintained ready for use as follows:

A. General requirements.—(1) *Blowout prevention equipment.* Blowout prevention equipment shall consist of an annular and a specific number of ram-type preventers. (Subsea blowout-preventer stacks used with floating drilling vessels shall be equipped with one set of blind-shear rams). The pipe rams shall be of proper size to fit the pipe in use. The bore of all preventers and spools shall be of sufficient size to accommodate the largest equipment that is expected to be run into the casing below the preventers. The working pressure of any blowout preventer shall exceed the maximum anticipated surface pressure to which it may be subjected. Information submitted with the Application for Permit to Drill shall include the maximum anticipated surface pressure and the criteria used to determine this pressure. A fail safe design shall be incorporated into the blowout-prevention system and shall include dual control systems and fail safe valving on critical lines and outlets. In addition, for subsea blowout-preventer stacks, a subsea accumulator system is required to provide fast closure of preventers and for cycling all critical functions in case of loss of connection to the surface.

All preventers shall be equipped with:

(a) A hydraulic actuating system that provides sufficient accumulator capacity to close all blowout prevention equipment units with a 50 percent operating fluid reserve at 8,300 kPa (1,204 psi). A high pressure nitrogen or other accumulator back-up system shall be provided with sufficient capacity to close all blowout preventers and hold them closed. Locking devices shall be provided on the ram-type preventers.

(b) An operable remote blowout-preventer control station shall be provided, in addition to the one on the drilling floor.

(c) A drilling spool with side outlets, if side outlets are not provided in the blowout preventer body, shall be installed to provide for a kill line and choke manifold. An auxiliary connection for an emergency kill or choke line shall be provided below any preventer that is in use and not located on the sea floor.

(d) A kill line with a master valve located next to the well. This valve shall not be used for normal opening or closing on flowing fluids. The kill line shall have at least one control valve in addition to the master valve.

(e) A choke manifold equipped with a hydraulic control valve, a master valve, three adjustable chokes of which one shall be a hydraulic adjustable choke, and an accurate pressure gauge. The choke manifold outlets shall be connected in such a manner that the returns may be directed to the mud system or other appropriate storage.

(f) A fill-up line.

(g) The annular type preventer shall be equipped with an alternate control to be used in case the primary controls fail.

(h) All valves, pipes, and fittings upstream of and including the choke manifold that can be exposed to pressure from the wellbore shall be of a pressure rating at least equal to that required of the blowout-prevention equipment.

(2) *Auxiliary equipment.* The following auxiliary equipment shall also be provided:

(a) A top kelly cock shall be installed below the swivel, and an essentially full-opening kelly cock of such design that it can be run through blowout preventers shall be installed at the bottom of the kelly.

(b) An inside blowout preventer and an essentially full-opening drill string safety valve in the open position shall be maintained on the rig floor at all times while drilling operations are being conducted. Valves shall be maintained on the rig floor to fit all pipe that is in the drill string. A safety valve shall be available on the rig floor assembled with the proper connection to fit the casing string that is being run in the hole.

B. Drive pipe or structural casing. Before drilling below this string, at least one remotely controlled, annular-type blowout preventer or pressure-rotating, pack-off-type head and equipment for circulating the drilling fluid to the drilling structure or vessel shall be installed. When the blowout-preventer system is on the ocean floor, the choke and kill lines or equivalent vent lines, equipped with necessary connections and fittings, shall be used for diversion. An annular preventer or pressure-rotating, pack-off-type head, equipped with suitable diversion lines as described above and installed on top of the marine riser, to permit the diversion of hydrocarbons and other fluids, may be utilized for diversion. The diverter system providing at least the equivalent of two 15-centimetre (6-inch) lines (or equivalent in internal cross-sectional area) and full-open or butterfly valves shall be installed in order to permit the full diversion of hydrocarbons and other fluids. The diverter system shall be

equipped with automatic, remotely controlled valves which open prior to shutting in the well, with at least two lines venting in different directions to accomplish downwind diversion. A schematic diagram and operational procedure for the diverter system shall be submitted with the Application for Permit to Drill (Form 9-331C) to the District Supervisor for approval.

In drilling operations where a floating or semisubmersible type of drilling vessel is used and formation competency at the structural casing setting depth is not adequate to permit circulation of drilling fluids to the vessel while drilling conductor hole, a program which provides for safety in these operations shall be described and submitted to the District Supervisor for approval. This program shall include all known pertinent and relevant information, including seismic and geologic data, water depth, drilling-fluid hydrostatic pressure, schematic diagram from rotary table to proposed conductor casing rest, and contingency plan for moving off location. In all areas where shallow hazards or hydrocarbons are unknown, seismic data shall be obtained, and a small-diameter initial pilot hole from the bottom of drive or structural casing to proposed conductor casing seat shall be drilled to aid in determining the presence or absence of these hazards. All seismic data shall be made available to the Supervisor, and an analysis of the geologic hazards shall be furnished with the Application for Permit to Drill.

C. Conductor casing. Before drilling below this string, at least one remotely controlled, annular-type blow-out preventer and equipment for circulating the drilling fluid to the drilling structure or vessel shall be installed. A diverter system as described in paragraph 4B above shall be installed.

D. Surface casing. Before drilling below this string, the blowout prevention equipment shall include a minimum of: (1) Three remotely controlled, hydraulically operated blowout preventers, including one equipped with pipe ram, one with blind rams, and one annular type. (Subsea blowout-preventer stacks used with floating drilling vessels shall be equipped with one set of blind-shear rams); (2) a drilling spool with side outlets, if side outlets are not provided in the blowout preventer body; (3) a choke line and manifold; (4) a kill line separate from choke line; and (5) a fill-up line.

E. Intermediate casing. Before drilling below this string, the blowout prevention equipment shall include a minimum of: (1) Four remotely-controlled, hydraulically operated blowout preventers with a working pressure which exceeds the maximum anticipated surface pressure, including at least two equipped with pipe rams, one with blind rams, and one annular type. (Subsea blowout-preventer stacks used with floating drilling vessels shall be equipped with one set of blind-shear rams); (2) a drilling spool with side outlets, if side outlets are not provided in the blowout preventer body; (3) a choke line and manifold; (4) a kill line separate from choke line; and (5) a fill-up line.

F. Testing.—(1) *Pressure test.* Ram-type blowout preventers and related control equipment shall be tested to the rated working pressure of the stack assembly, or at the working pressure of the casing, whichever is the lesser. Annular-type preventers shall be tested to 70 percent of these pressure requirements. They shall be tested: (a) When installed, (b) before drilling out after each string of casing is set, (c) not less than once each week while conducting drilling operations, and (d) following repairs that require disconnecting a pressure seal in the assembly.

(2) **Actuation.** While drill pipe is in use, the ram-type blowout preventer equipped with pipe rams shall be actuated at least once each day. If a tapered drill string is in use, the smaller size rams shall be actuated on the appropriate size pipe, once each trip. The blind rams shall be actuated while out of the hole once each trip. Accumulators or accumulators and pumps shall maintain a pressure capacity reserve at all times to provide for repeated operation of hydraulic preventers. An operable remote blowout-preventer control station shall be provided in addition to the one on the drilling floor. Each control station will be tested for proper operation once each day when the pipe is out of the hole.

Each control system shall alternately be tested to ensure proper functioning. If either system is not functional, further drilling operations shall be suspended until that system becomes operable.

(3) **Drills.** A blowout-prevention drill shall be conducted weekly for each drilling crew to insure that all equipment is operational and that crews are properly trained to carry out emergency duties.

(4) **Records.** All blowout-preventer tests and crew drills shall be recorded on the driller's log.

5. **Mud program.** The characteristics, use, and testing of drilling mud and the conduct of related drilling procedures shall be such as are necessary to prevent the blowout of any well. Quantities of mud materials sufficient to insure well control shall be maintained readily accessible for use at all times.

A. **Mud control.** Before starting out of the hole with drill pipe, the mud shall be properly conditioned. Proper conditioning requires either circulation with the drill pipe just off bottom to the extent that the annular volume is displaced, or proper documentation in the driller's log prior to pulling the drill pipe that: (1) There was no indication of influx of formation fluids prior to starting to pull the drill pipe from the hole, (2) the weight of the returning mud is not less than the weight of the mud entering the hole, and (3) other mud properties recorded on the daily drilling log are within the specified ranges at the stage of drilling the hole to perform their required functions. In those cases when the hole is circulated, the driller's log shall be so noted.

When coming out of the hole with drill pipe, the annulus shall be filled with mud before the mud level drops 30 metres (100 feet). A mechanical device for measuring the amount of mud required to fill the hole shall be utilized, and any time there is an indication of swabbing, or influx of formation fluids, the necessary safety devices and action shall be employed to control the well. The mud shall not be circulated and conditioned, except on or near bottom, unless well conditions prevent running the drill pipe back to bottom. The mud in the hole shall be circulated or reverse-circulated prior to pulling drill-stem test tools from the hole.

The hole shall be filled by accurately measured volumes of mud. The number of stands of drill pipe and drill collars that may be pulled between the times of filling the hole shall be calculated and posted. The number of barrels and pump strokes required to fill the hole for this designated number of stands of drill pipe and drill collars shall be posted. For each casing string, the maximum pressure which may be applied to the blowout preventer before controlling excess pressure by bleeding through the choke shall be posted near the derrick. Drill pipe pressure shall be monitored during the bleeding procedure for well control.

An operable daygasser shall be installed in the mud system prior to the commencement

of drilling operations and shall be maintained for use throughout the drilling and completion of the well.

B. **Mud test equipment.** Mud test equipment shall be maintained on the drilling rig at all times, and mud tests shall be performed once each tour, or more frequently as conditions warrant. Such tests shall be conducted in accordance with procedures outlined in API RP 13B, "Recommended Practice for Standard Procedure for Testing Drilling Fluids," Sixth Edition, April 1976, or subsequent revisions as approved by the Supervisor and the results recorded and maintained at the drill site. The following mud-system monitoring equipment shall be installed (with derrick floor indicators) and used at the point in the drilling operation when mud returns are established and throughout subsequent drilling operations:

(1) Recording mud pit level indicator to determine mud pit volume gains and losses. This indicator shall include a visual and audio warning device.

(2) Mud volume measuring device for accurately determining mud volumes required to fill the hole on trips.

(3) Mud return indicator to determine that returns essentially equal the pump discharge rate.

(4) Gas-detecting equipment to monitor the drilling mud returns.

C. **Mud quantities.** The operator shall state in the Application for Permit to Drill the minimum quantities of mud material, including weighting material, to be maintained at the drill site for emergency use.

This quantity shall not be less than the amount necessary to make a mud volume equal to twice the calculated capacity of the active down hole and surface mud system. The minimum quantity of weighting material to be maintained at the drill site shall be sufficient to overcome the highest anticipated formation pressure with the mud weight at least one pound per gallon greater than the weight required to overcome such formation pressure. Daily inventories of mud materials, including weighting material, shall be recorded and maintained at the drill site. Drilling operations shall be suspended in the absence of approved minimum quantities of mud materials for emergency use.

6. **Supervision, surveillance, and training.** A. **Supervision.** A representative of the operator shall provide, on site, supervision of drilling operations on a 24-hour basis.

B. **Surveillance.** From the time drilling operations are initiated and until the well is completed or abandoned, a member of the drilling crew or the toolpusher shall maintain rig floor surveillance continuously, unless the well is secured with blowout preventers or cement plugs.

C. **Training.** Company and drilling contractor supervisory personnel including drillers shall be trained in and qualified for present-day well control. Records of such training and qualification shall be maintained at the drill site. Training shall include but is not limited to:

(1) Abnormal pressure detection methods.

(2) Well-control methods and procedures. Such training shall be given in addition to the required weekly blowout prevention drills. Written verification of compliance with these provisions shall be filed with the Supervisor. As standards for training are developed for all members of the drilling crew, they will be incorporated into this Order. Compliance shall be considered a prerequisite to approval of any drilling operation.

7. **Hydrogen sulfide.** When drilling operations are undertaken to penetrate reservoirs known or expected to contain hydrogen sulfide (H₂S), or if unknown upon encountering H₂S, the preventive measures and oper-

ating practices set forth in U.S. Geological Survey Outer Continental Shelf Standard No. 1 (OSS-OCI-1), "Safety Requirements for Drilling Operations in a Hydrogen Sulfide Environment," February 1978, shall be followed.

8. **Critical operations and curtailment plans.** Certain operations performed in drilling are more critical than others with respect to well control, fire, explosion, oil spills, and other discharge or emissions. These operations may occur during drilling, running casing, logging, drill-stem testing, well completion, or wire-line operations.

Each operator shall file with the Supervisor for approval of a Critical Operations and Curtailment Plan for the lease, which shall contain:

A. A list or description of the critical drilling operations that are or are likely to be conducted on the lease. Such list or description shall specify the operations to be ceased, limited, or not to be commenced under given circumstances or conditions. The list shall include operations such as:

(1) Drilling in close proximity to another producing well.

(2) Drill-stem testing.

(3) Running and cementing casing.

(4) Cutting and recovering casing.

(5) Logging or wireline operations.

(6) Well-completion operations.

(7) Moving the drilling vessel off location in an emergency; repositioning the vessel on location; and reestablishing entry into the well.

B. A list or description of circumstances or conditions under which such critical operations shall be curtailed. The list or description shall be developed from all the factors and conditions relating to the conduct of operations on the lease, and shall consider but not necessarily be limited to the following:

(1) Whether the drilling operations are to be conducted from mobile or fixed platforms.

(2) The availability and capability of containment and cleanup equipment.

(3) Abnormal or unusual characteristics expected to be encountered during drilling operations.

(4) Soil control system response time.

(5) Known, or anticipated meteorological or oceanographical conditions.

(6) Availability of personnel and equipment for the particular operation to be conducted.

(7) Other factors peculiar to the particular lease under consideration.

C. When any such circumstance or condition listed or described in the plan occurs or other operational limits are encountered, the operator shall notify the Supervisor and shall curtail the critical operations as set forth under A above. In the conduct of the critical operations, full consideration shall be given to pertinent factors such as supply of well control materials, subsurface conditions, inventory of soil-containment equipment, weather conditions, particular esthetic conditions, fire hazards, available transportation equipment, well-control response time, and nature of work planned.

D. Any deviations in the plan shall require prior approval by the Supervisor except in case of an emergency in which event the Supervisor shall be notified as soon as possible.

E. The operator shall review the plan at least annually. Notification of the review and any amendments or modifications to the plan shall be filed with the Supervisor.

HARRY A. DUFOUR,
Area Oil and Gas Supervisor.

Approved:
BURNS & G. WATLAND,
Acting Chief, Conservation Division.

SUMMARY OF COMMENTS ON DRAFT MID-ATLANTIC OCS ORDER AND U.S. GEOLOGICAL SURVEY (USGS) DISCUSSIONS

3246

OCS ORDER NO. 3

PARAGRAPH NO. 1.A

Comments. Comments were received criticizing the inclusion of the requirement for a 100 foot cement plug for every 2,500 feet of uncased hole in wells requiring a mud weight in excess of 12.0 pounds per gallon for control. The commenters were of the opinion that since the USGS monitors a well during drilling and approves the plugging procedure prior to implementation, there was no need for additional requirements.

USGS Rationale. The Order was not revised. The 2,500 feet open-hole plug requirement is a minimum standard to insure the safety of abandoned wells. This requirement, however, may be precluded where a more stringent safety requirement is found necessary for a particular well.

PARAGRAPH NO. 1.C

Comments. In addition to the tests specified, it was recommended that pressure testing also be included as an alternative method of plug testing. Pressure tests were cited as having the additional advantage of testing for communication in the casing.

USGS Rationale. The USGS agrees that a properly conducted pressure test would provide an accurate indication of plug integrity.

DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY CONSERVATION DIVISION EASTERN AREA

MID-ATLANTIC

OCS ORDER NO. 3

Effective: July 1, 1976.

PLUGGING AND ABANDONMENT OF WELLS

This Order is established pursuant to the authority prescribed in 30 CFR 250.11 and in accordance with 30 CFR 250.13. The operator shall comply with the following minimum plugging and abandonment procedures which have general application to all wells drilled for oil and gas. Plugging and abandonment operations must not be commenced prior to obtaining approval from an authorized representative of the Geological Survey. Oral approvals shall be in accordance with 30 CFR 250.13. All departures from the requirements specified in this Order must be approved pursuant to 30 CFR 250.12(b).

1. **Permanent abandonment—A. Isolation in uncased hole.** In uncased portions of wells, cement plugs shall be spaced to extend 30 metres (100 feet) below the bottom to 30 metres (100 feet) above the top of any oil, gas, and fresh water zones so as to isolate them in the strata in which they are found and to prevent them from escaping into other strata. Additional cement plugs may be required to protect other minerals, or to prevent migration of fluids in the well bore. No more than 760 metres (2,493 feet) of uncased hole shall be left without a cement plug of at least 30 metres (100 feet) in length in wells requiring a mud weight in excess of 1.4 g/cm³ (12.0 ppg) for control.

B. **Isolation of open hole.** Where there is open hole (uncased and open into the casing string above) below the casing, a cement plug shall be placed in the deepest casing string by (1) or (2) below, or in the event lost circulation conditions exist or are anticipated,

the plug may be placed in accordance with (3) below:

(1) A cement plug placed by displacement method so as to extend a minimum of 30 metres (100 feet) above and 30 metres (100 feet) below the casing shoe.

(2) A cement retainer with effective back pressure control set not less than 15 metres (50 feet), nor more than 30 metres (100 feet), above the casing shoe with a cement plug calculated to extend at least 30 metres (100 feet) below the casing shoe and 15 metres (50 feet) above the retainer.

(3) A permanent type bridge plug set within 45 metres (148 feet) above the casing shoe with 15 metres (50 feet) of cement on top of the bridge plug. This plug shall be tested prior to placing subsequent plugs.

C. **Plugging or isolating perforated intervals.** A cement plug shall be placed opposite all open perforations (perforations not squeezed with cement) extending a minimum of 30 metres (100 feet) above and 30 metres (100 feet) below the perforated interval or down to a casing plug, whichever is less. In lieu of the cement plug, the following two methods are acceptable, provided the perforations are isolated from the hole below:

(1) A cement retainer with effective back pressure control set not less than 15 metres (50 feet) nor more than 30 metres (100 feet) above the top of perforated interval with a cement plug calculated to extend at least 30 metres (100 feet) below the bottom of the perforated interval and 15 metres (50 feet) above the retainer.

(2) A permanent type bridge plug set within 45 metres (148 feet) above the top of the perforated interval with 15 metres (50 feet) of cement on top of the bridge plug.

D. **Plugging of casing stubs.** If casing is cut and recovered, a cement plug 60 metres (197 feet) in length shall be placed to extend 30 metres (100 feet) above and 30 metres (100 feet) below the stub. A retainer may be used in setting the required plug.

E. **Plugging of annular spaces.** No annular space that extends to the ocean floor shall be left open to drilled hole below. If this condition exists, the annulus shall be plugged with cement.

F. **Surface plug requirement.** A cement plug of at least 45 metres (148 feet), with the top of the plug 45 metres (148 feet) or less below the ocean floor, shall be placed in the smallest string of casing which extends to the surface.

G. **Testing of plugs.** The setting and location of the first plug below the top 45-metre (148-foot) plug, will be verified by either (1) placing a minimum pipe weight of 6,800 kilograms (15,000 pounds) on the plug, or where this plug is placed utilizing a cement retainer or bridge plug, it is only necessary that the setting of the retainer or bridge plug be verified by placing at least 6,800 kilograms (15,000 pounds) on it prior to placing cement on top, or (2) testing with a minimum pump pressure of 6,900 kPa (1,000 psi) with no more than a 10-percent pressure drop during a 15-minute period.

H. **Mud.** Each of the respective intervals of the hole between the various plugs shall be filled with mud fluid of sufficient density to exert hydrostatic pressure exceeding the greatest formation pressure encountered while drilling such interval.

1. **Clearance of location.** All casing and piling shall be severed and removed to that depth below the ocean floor approved by the Area Supervisor after a review of data on the ocean bottom conditions. The operator shall verify that the location has been cleared of all obstructions.

2. **Temporary abandonment.** Any drilling well which is to be temporarily abandoned shall be mudded and cemented as required

for permanent abandonment except for requirements F and I of section 1 above. When casing extends above the ocean floor, a mechanical bridge plug (retrievable or permanent) shall be set in the casing between 8 and 60 metres (26 and 197 feet) below the ocean floor.

HARRY A. DuFOUR,
Area Oil and Gas Supervisor.

Approved:

RUSSELL J. WAYLAND,
Acting Chief, Conservation Division.

SUMMARY OF COMMENTS ON DRAFT MID-ATLANTIC OCS ORDER AND U.S. GEOLOGICAL SURVEY (USGS) DISCUSSIONS

OCS ORDER NO. 4

PREAMBLE PARAGRAPH

Comments. It was suggested that the Order should stipulate the criteria that an Area Supervisor would use in approving suspensions of production.

USGS Rationale. The Order was not revised. Criteria for approving a suspension of production was published in the FEDERAL REGISTER, Vol. 40, No. 245, Friday, December 19, 1975, as proposed OCS Order No. 14, entitled "Approval of Suspensions of Production."

PARAGRAPH NOS. 1, 2, AND 3

Comments. Objections were raised over the requirement of a two-hour production or deliverability test to prove a well capable of producing in paying quantities. Arguments were advanced that well tests are inconclusive, expensive, and, when conducted from mobile drilling rigs, potentially dangerous. It was further stated that a production test is not necessary to determine a well's capability and, therefore, an alternative to production testing should be provided.

USGS Rationale. The last sentence of the first paragraph was revised to state that the data requested for the determination of well productivity are minimum requirements. The producing capability of reservoirs in the Mid-Atlantic Area is not known at this time. It is, therefore, not possible to relate productivity to other factors such as electrical log interruption.

Comments. It was recommended that incineration of oil and gas produced during well tests be required.

USGS Rationale. The Order does not require the incineration of oil produced during test in order to allow operators the option of bringing the oil to shore in a small tank on a supply boat. Ordering the incineration of the oil would preclude the collection of royalty on oil which the operator might elect to bring to shore. Order No. 7 prohibits the discharge of oil; therefore, if the test production cannot be brought to shore, the oil and gas must be burned.

PARAGRAPH NO. 4

Comments. It was recommended that test results be submitted to appropriate State agencies within the Mid-Atlantic Area.

USGS Rationale. The Order was not revised. Such information will be available in accordance with the provisions of OCS Order No. 12.

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CONSERVATION DIVISION EASTERN AREA
MID-ATLANTIC
OCS ORDER No. 4

Effective: July 1, 1976.

SUSPENSIONS AND DETERMINATION OF WELL
PRODUCTIVITY

This Order is established pursuant to the authority prescribed in 30 CFR 250.11 and in accordance with 30 CFR 250.12(d)(1). An OCS lease provides for extension beyond its primary term for as long as oil or gas may be produced from the lease in paying quantities. The term "paying quantities" as used herein means production in quantities sufficient to yield a return in excess of operating costs. An OCS lease may be maintained beyond the primary term, in the absence of actual production, when a suspension of production has been approved. All applications for suspension of production for an initial period should be submitted prior to the expiration of the term of a lease. The Area Supervisor may approve a suspension of production provided at least one well has been drilled on the lease and determined to be capable of producing in paying quantities. The temporary or permanent abandonment of a well will not preclude approval of a suspension of production as provided in 30 CFR 250.12(d)(1). All departures from the requirements specified in this Order must be approved pursuant to 30 CFR 250.12(b).

To provide data necessary to determine that a well may be capable of producing in paying quantities, the following are minimum requirements:

1. **Oil Wells.** A production test of at least two hours duration, following stabilization of flow.

2. **Gas Wells.** A deliverability test of at least two hours duration, following stabilization of flow, or a four-point back-pressure test.

3. **Well Data.** All pertinent engineering, geologic, and economic data shall be submitted to the District Supervisor and will be considered in determining whether or not a well is capable of being produced in paying quantities.

4. **Witnessing and Results.** All tests must be witnessed by an authorized representative of the Geological Survey. Test data accompanied by operator's affidavit, or third-party test data, may be accepted in lieu of a witnessed test provided prior approval is obtained from the District Supervisor.

HARRY A. DUPONT,
Area Oil and Gas Supervisor.

Approved:

RUSSELL G. WAYLAND,
Acting Chief, Conservation Division.

SUMMARY OF COMMENTS ON DRAFT MID-ATLANTIC OCS ORDER AND U.S. GEOLOGICAL SURVEY (USGS) DISCUSSIONS

ORDER NO. 5

PREAMBLE PARAGRAPH

Comments. It was suggested that the preamble paragraph should be revised to include a restatement of the authorizing Federal regulation 30 CFR 250.41(b).

USGS Rationale. The Order was not revised since this information is readily available in booklet form from any of the Area offices.

PARAGRAPH No. 1

Comments. Several of the commenters recommended that subsurface-controlled

subsurface safety devices could be used in lieu of surface-controlled or other remotely-controlled subsurface safety devices for wells with shut-in tubing pressures of 4,000 psi or greater. Their rationale was based, in part, on the limited availability of high-pressure surface-controlled subsurface valves. They also argued that the pressure criteria were consistent with the Gulf of Mexico Order No. 5.

USGS Rationale. It is believed that the added safety factor of surface-controlled subsurface safety valves warrant the requirement for their use.

The preamble to Section 1. Installation, was revised to specifically state the requirements for surface-controlled subsurface safety valves and to make it clear that surface controls may be located on site or remotely. The words "oil or gas" were deleted so that wells which are capable of flowing salt water would also require the safety devices.

SUBPARAGRAPH 1(B)

Comments. It was suggested that the last phrase of the subparagraph be revised to read "incapable of flowing oil or gas, which condition shall be verified annually."

USGS Rationale. The words "surface-controlled" were added to the subparagraph. Antipollution and safety requirements would not be honored if surface-controlled subsurface safety valves were not installed in injection wells. Injection wells, regardless of their history of activity, often contain residual volumes of oil and/or entrained gas. These residual volumes collect in the well bore when injection is terminated; therefore, such injection wells are capable of flowing oil or gas. The words oil or gas were not added so that wells which are capable of flowing salt water would also require the safety devices. High salinity water is also a pollutant.

SUBPARAGRAPH 2.A.(1)

Comments. It was suggested that the reference to API Specification 14A, October 1973, Subsurface Safety Valves, be expanded to include the latest supplements.

USGS Rationale. This suggestion was adopted.

Comments. It was also suggested that subsurface devices selected for use be required to be approved by the Supervisor.

USGS Rationale. The Order was not revised as the Supervisor states his criteria for accepting the devices when he requires the devices to meet the minimum standards of API Specification 14A. Devices not meeting these specifications will not be approved for use.

SUBPARAGRAPH 2.A.(2)

Comment. It was suggested that the frequency of the testing of the subsurface safety valves was excessive and that the language should be changed to require testing at intervals not exceeding six months.

USGS Rationale. The Order was not revised. Considering the ease of operation of surface-controlled subsurface

safety valves, we do not consider the frequency of the test to be excessive. Frequent testing verifies the reliability of the valve.

Comments. It was also suggested that the last sentence of the subparagraph be revised to state that faulty subsurface safety devices shall be removed immediately.

USGS Rationale. The word promptly was inserted to ensure diligence. Safe operating conditions in the event the device cannot be replaced are assumed through the statement. The last sentence of the introduction of Paragraph 2 that the well shall not be left unattended while open to production unless a properly operating subsurface safety device has been installed in the well.

PARAGRAPH No. 4

Comments. It was suggested that the requirement for the tubing casing annulus to be packed off above the uppermost perforations should be broadened to require that the packer be set at least 100 feet below the measured top of cement on the production string or the intermediate string.

USGS Rationale. The sentence was revised to place an upper limitation on the setting location of the packer with respect to the top of the cement.

DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

CONSERVATION DIVISION EASTERN AREA

MID-ATLANTIC

OCS ORDER No. 6

Effective: July 1, 1976.

SUBSURFACE SAFETY DEVICES

This Order is established pursuant to the authority prescribed in 30 CFR 250.11 and in accordance with 30 CFR 250.41(b). The operator shall comply with the following requirements. All departures from the requirements specified in this Order shall be subject to approval pursuant to 30 CFR 250.12(b). All applications for approval under the provisions of this Order shall be submitted to the District Supervisor. Reference in the Order to approvals, determinations, or requirements are to those given or made by the Area Supervisor or his delegated representative.

1. **Installation.** All tubing installations open to hydrocarbon-bearing zones shall be equipped with a surface-controlled subsurface safety device. The surface controls may be located on site or remotely. The device is to be installed at a depth of 30 metres (100 feet) or more below the ocean floor unless, after application and justification, the well is determined to be incapable of flowing. These installations shall be made within two days after stabilized production is established. The well shall not be left unattended while open to production before a subsurface safety device is installed.

A. **Shut-in wells.** A tubing plug shall be installed in lieu of, or in addition to, other subsurface safety devices if a well has been shut in for a period of six months. Such plugs shall be set at a depth of 30 metres (100 feet) or more below the ocean floor and shall be of the pump-through type. All wells perforated and completed, but not placed on production, shall be equipped with a subsurface safety device or tubing plug within two days after completion.

B. **Injection wells.** Surface-controlled subsurface safety devices shall be installed in all injection wells unless, after application

and justification, it is determined that the well is incapable of flowing which condition shall be verified annually.

2. Design, testing, and inspection. Subsurface safety devices shall be designed, adjusted, installed, and maintained to insure reliable operation. During testing and inspection procedures, the well shall not be left unattended while open to production unless a properly operating subsurface safety device has been installed in the well.

A. Surface-controlled subsurface safety devices.

(1) **Quality assurance and performance.** The operator shall use subsurface safety devices that comply with the minimum standards set forth in "API Spec 14 A, First Edition, October 1973, Subsurface Safety Valves," as amended by supplement 2, February 1979, or supplements thereto as approved by the Area Supervisor, for quality assurance including design, material, and functional test requirements, and for verification of independent party performance testing and manufacturer functional testing of such valves.

(2) **Installation and testing.** The operator shall comply with the minimum recommended practices set forth in "API RP 14 B, First Edition, October 1973, Design, Installation, and Operation of Subsurface Safety Valve Systems," or supplements thereto as approved by the Area Supervisor, which contain procedures for design calculations, safe installation, and operating and testing. Each surface-controlled subsurface safety device installed in a well shall be tested in place for proper operation when installed, or reinstalled, at least monthly for the next six months and quarterly thereafter. If the device does not operate properly, it shall be promptly removed, repaired, and reinstalled or replaced and tested to insure proper operation.

B. Tubing plugs. A shut-in well equipped with a tubing plug shall be inspected for leakage by opening the well to possible flow at intervals not exceeding six months. If sustained liquid flow exceeds 400 cm³/min (0.14 ft³/min), or gas flow exceeds 425 dm³/min (15 ft³/min), the plug shall be promptly removed, repaired, and reinstalled or an additional tubing plug installed to prevent leakage.

3. Temporary removal. Each wireline- or pumpdown-retrievable subsurface safety device may be removed, without further authorization or notice, for a routine operation which does not require approval of a Sundry Notice and Report on Wells (Form 9-331) for a period not to exceed fifteen days. The well shall be clearly identified as being without a subsurface safety device and shall not be left unattended while open to production. The provisions of this paragraph are not applicable to the testing and inspection procedures specified in section 2 (Design, Testing, and Inspection) above.

4. Additional protective equipment. All tubing installations in which a wireline- or pumpdown-retrievable subsurface safety device is to be installed shall be equipped with a landing nipple, with flow couplings or other protective equipment above and below, to provide for setting of the subsurface safety device. All wells in which a subsurface safety device or tubing plug is installed shall have the tubing-casing annulus packed off above the uppermost open casing perforation, and at least 30 metres (100 feet) below the measured top of cement on the production string or the intermediate string. The control system for all surface-controlled subsurface safety devices shall be an integral part of the platform shut-in system.

5. Departures. All departure applications will be considered for approval pursuant to 30 CFR 250.12(b) and the requirements of this Order. All applications for departures shall include a detailed statement of the well

conditions, efforts made to overcome any difficulties, and proposed alternate safety measures.

6. Emergency action. All tubing installations open to hydrocarbon-bearing zones and not equipped with a subsurface safety device as permitted by this Order shall be clearly identified as not being so equipped, and a subsurface safety device or tubing plug shall be available at the field location. In the event of an emergency, such device or plug shall be promptly installed, due consideration being given to personnel safety.

7. Records. The operator shall maintain the following records for a minimum period of one year for each subsurface safety device and tubing plug installed, and these records shall be available to any authorized representative of the Geological Survey.

A. Field records. Individual well records shall be maintained at or near the field and shall include, as a minimum, the following information:

- (1) A record which will give design and other information; i.e., make, model, type, spacers, bean and spring size, pressure, etc.
- (2) Verification of assembly by a qualified person in charge of installing the device and installation date.
- (3) Verification of setting depth and all operational tests as required in this Order.
- (4) Removal date, reason for removal, and reinstallation date.
- (5) A record of all modifications of design in the field.
- (6) All mechanical failures or malfunctions, including sand cutting, of such devices, with notation as to cause or probable cause.
- (7) Verification that failure report was submitted.

B. Other records. The following records, as a minimum, shall be maintained at the operator's office:

- (1) Verified design information of subsurface safety devices for the individual well.
- (2) Verification of assembly and installation according to design information.
- (3) All failure reports.
- (4) All laboratory analysis reports of failed or damaged parts.
- (5) Quarterly failure-analysis report.

8. Reports. Well completion reports (Form 9-330) and any subsequent reports of work-over (Form 9-331) shall include the type and the depth of the subsurface safety devices and tubing plugs installed.

To establish a failure-reporting and corrective-action program as a basis for reliability and quality control, each operator shall submit a quarterly failure-analysis report to the Area Supervisor, identifying mechanical failures by lease and well, make and model, cause or probable cause of failure, and action taken to correct the failure. The report shall be submitted within 30 days following the periods ending December 31, March 31, June 30, and September 30 of each year.

HARRY A. DUPONT,
Area Oil and Gas Supervisor.

Approved:

RUSSELL G. WAYLAND,
Acting Chief, Conservation Division.

SUMMARY OF COMMENTS ON DRAFT MID-ATLANTIC OCS ORDER AND U.S. GEOLOGICAL SURVEY (USGS) DISCUSSIONS

OCS ORDER NO. 1

PARAGRAPH NO. 1.A.(1)

Comments. Commenters suggested that the word "free oil" be added to subparagraph 1.A.(1) for clarity and to be consistent with the proposed EPA regulations 40 CFR 408, Offshore Segment of the Oil and Gas Extraction Points Source Category (Effluent Stand-

ards and Guidelines), which prohibit the discharge of free oil.

USGS Rationale. The USGS agrees with the rationale of the commenters and has added the words "free oil" to the subparagraph.

PARAGRAPH NO. 1.A.(2)

Comments. There was a consensus of opinion among the commenters that the requirement for a list of drilling mud additives which might be used to meet special drilling requirements was unnecessary and should be deleted.

USGS Rationale. The phrase "which might be used to meet special drilling requirements" did not clearly state the intent which was to allow for planning of the method of disposal of substances which were programmed for use; therefore, the wording was changed to "drilling mud component, including common chemical or chemical trade name of each component, and a list of the drilling mud additives anticipated for use in meeting special drilling requirements."

Comments. There was also a consensus among the commenters that the intent of the last sentence, "drilling mud containing toxic substances shall be neutralized prior to disposal," was not clear.

USGS Rationale. In the preamble of Paragraph No. 1, it is stated that disposal of waste materials into the ocean shall not create conditions which will adversely affect the public health, life or property, aquatic life or wildlife, recreation, navigation, or other uses of the ocean. This wording is taken from the EPA regulations and is consistent with USGS policy. Since neutralization of toxic substances may not always be the method specified by the Supervisor, the last sentence of this Section has been changed to reflect the applicability of a variety of Federal regulations as the true controlling criteria.

SUBPARAGRAPH 1.A.(4)

This paragraph was rewritten to recognize the permitting authority of the Environmental Protection Agency.

SUBPARAGRAPH 2.B.

Comments. Commenters suggested that this paragraph should be revised to separate the inspection schedules into categories of manned facilities and unmanned facilities and to cover the requirements for maintenance or repairs in separate subparagraphs.

USGS Rationale. Subparagraph No. 2.B. was revised to provide for inspection of unattended facilities at frequent instead of daily intervals and to clarify the intention of this part.

SUBPARAGRAPH 2.C.(1)

Comments. One commenter suggested that the requirement for reporting an oil spill be broadened to permit an 18-hour time limit.

USGS Rationale. The Supervisor or his designee is always available for the notification of an oil spill. It is not necessary to extend the time of notification to accommodate the hours of the District office.

SUBPARAGRAPH 2.C. (2), (3), AND (4)

Comments. The consensus of opinion of the commenters on subparagraphs (3) and (4) was that these paragraphs should be combined. Several of the commenters indicated that these paragraphs

should be consistent with the requirements of Pub. L. 92-500 and Executive Order 11735 and should require notification of the potentially affected States of any oil spill.

USGS Rationale. Initial draft subparagraph 2.C (3) and (4) have been combined for consistency and to avoid certain areas of confusion. The reporting requirements have been modified to be in conformance with the "National Hazardous Substance Pollution Contingency Plan." It further provides that the District Supervisor will contact appropriate State agencies in the event of an oil spill.

SUBPARAGRAPH 3.A

Comments. Several of the commenters suggested that the requirement for monthly inspection of pollution control equipment should be changed to "regularly."

USGS Rationale. The Order was not revised. The word monthly was used to insure regularity of inspection.

SUBPARAGRAPH 3.B.(1)

Comments. One commenter suggested the deletion of the phrase "and the time required for deployment" from subparagraph 3.B.(1) of the Oil Contingency Plan.

USGS Rationale. The Order was not revised since deployment time is crucial to the determination of the adequacy of any contingency plan.

SECTION 5

Comments. One commenter suggested that the title of this Section be changed to Annual Contingency Plan Assessment to be consistent with the intent of the Section.

USGS Rationale. The title was changed in agreement with the rationale of the commenters.

DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

CONSERVATION DIVISION EASTERN AREA MID-ATLANTIC

OCS ORDER NO. 7; EFFECTIVE: JULY 1, 1976

POLLUTION AND WASTE DISPOSAL

This Order is established pursuant to the authority prescribed in 30 CFR 250.11 and in accordance with 30 CFR 250.43. The operator shall comply with the following requirements. All departures from the requirements specified in this Order shall be subject to approval pursuant to 30 CFR 250.12(b).

1. **Pollution prevention.** In the conduct of an oil and gas operations, the operator shall prevent pollution of the ocean. Furthermore, the disposal of waste materials into the ocean shall not create conditions which will adversely affect the public health, life or property, aquatic life or wildlife, recreation, navigation, or other uses of the ocean.

A. **Liquid disposal.** (1) Drilling mud containing free oil shall not be disposed of into the ocean.

(2) The operator shall submit with the Application for Permit to Drill (Form 9-331C) a detailed list of drilling mud components, including the common chemical or chemical trade name of each component, and a list of the drilling mud additives anticipated for use in meeting special drilling requirements.

Disposal of drilling mud shall be by methods which will minimize the adverse effects to marine life. These methods shall be consistent with applicable Federal Regulations. Approval of drilling mud disposal procedures will be site specific and on a case-by-case basis.

(3) Curbs, gutters, and drains on platforms and structures shall be installed and maintained in accordance with the provisions of OCS Order No. 2.

(4) Discharges from fixed structures, including sanitary waste, produced water, and deck drainage, are subject to Environmental Protection Agency permitting procedures pursuant to the Federal Water Pollution Control Act as amended.

B. **Solid waste disposal.** (1) Drill cuttings, sand, and other solids containing oil shall not be disposed of into the ocean unless all of the free oil has been removed.

(2) Mud containers and other similar solid waste materials shall be incinerated or transported to shore for disposal in accordance with Federal, State, or local requirements.

2. **Personnel, inspections, and reports—A. Personnel.** The operator's personnel shall be thoroughly instructed in the techniques of equipment maintenance and operation for the prevention of pollution. Nonoperator personnel shall be informed in writing, prior to executing contracts, of the operator's obligations to prevent pollution.

B. **Pollution inspection schedules.** Operators shall inspect their facilities as follows:

(1) Manned facilities shall be inspected daily.

(2) Unattended facilities, including those equipped with remote control and monitoring systems, shall be inspected at frequent intervals. The District Supervisor may prescribe the frequency of inspections for these facilities.

(3) All production facilities, such as separators, tanks, treaters, and other equipment, shall be designed to prevent pollution. Maintenance or repairs necessary to prevent pollution of the ocean shall be undertaken immediately.

C. **Pollution reports.** All pollution reports required shall be submitted on Form 9-1880, entitled *Pollution Report*.

(1) All spills of oil and liquid pollutants shall be recorded showing the cause, size of spill, and action taken, and the record shall be maintained and available for inspection by the District Supervisor. All spills of less than 2.5 cubic metres (15 barrels) shall be reported orally to the District Supervisor within 12 hours and shall be confirmed in writing.

(2) All spills of oil and liquid pollutants of 2.5 to 8 cubic metres (15 to 50 barrels) shall be reported orally to the District Supervisor within four (4) hours and shall be confirmed in writing.

(3) All spills of oil and liquid pollutants of more than 8 cubic metres (50 barrels) shall be reported orally without delay to the District Supervisor and the Coast Guard. All oral reports shall be confirmed in writing. The District Supervisor shall notify the Governor(s), or his (their) designee(s), of all such spills without delay.

(4) Operators shall notify each other upon observation of equipment malfunction or pollution resulting from another's operation.

3. **Pollution control equipment and oil spill contingency plan—A. Equipment.** Standby pollution control equipment and materials shall be maintained by, or shall be available to, each operator at an offshore or onshore location. This shall include containment booms, skimming apparatus, cleanup materials and chemical agents, and shall be available prior to the commencement of operations. No chemicals shall be used without prior approval of the Area Supervisor. The

equipment shall be inspected monthly and maintained in good condition for use. The results of the inspections shall be recorded and maintained at the site.

B. **Oil spill contingency plan.** The operator shall submit an oil spill contingency plan for approval by the Area Supervisor before consideration can be given to approval of an application for permit to conduct operations. This plan shall contain the following:

(1) Provisions to ensure that full resource capability is known and can be committed during an oil discharge situation including the identification and inventory of applicable equipment materials and supplies which are available locally and regionally, both committed and uncommitted, and the time required for deployment.

(2) Provisions for varying degrees of response effort depending on the severity of the oil discharge.

(3) Establishment of notification procedures for the purpose of early detection and timely notification of an oil discharge including a current list of names, telephone numbers, and addresses of the responsible persons and alternates on call to receive notification of an oil discharge, as well as the names, telephone numbers, and addresses of regulatory organizations and agencies to be notified when an oil discharge is discovered.

(4) Provisions for well defined and specific actions to be taken after discovery and notification of an oil discharge including:

(a) Specification of an oil discharge response operating team consisting of trained, prepared and available operating personnel.

(b) Pre-designation of an oil discharge response coordinator who is charged with the responsibility and delegated commensurate authority for directing and coordinating response operations.

(c) A preplanned location for an oil discharge response operations center and a reliable communications system for directing the coordinated overall response operations.

4. **Spill control and removal.** Immediate corrective action shall be taken in all cases where pollution has occurred. Corrective action taken under the Oil Spill Contingency Plan shall be subject to modification when directed by the Area Supervisor. The primary jurisdiction to require corrective action to abate the source of pollution and to enforce the subsequent cleanup by the lessee or operator shall remain with the Area Supervisor pursuant to the provisions of this Order and the memorandum of understanding between the Department of Transportation (U.S. Coast Guard) and the Department of the Interior (U.S. Geological Survey) dated August 16, 1971.

5. **Annual contingency plan assessment.** Annual contingency plan assessments will be conducted in conjunction with the Plan of Development review. Upon request of the Area Supervisor, revised contingency plans reflecting changes in personnel, equipment, and methods shall be submitted.

HARRY A. DUFOUR,
Area Oil and Gas Supervisor.

Approved:

RUSSELL G. WAYLAND,

Acting Chief, Conservation Division.

SUMMARY OF COMMENTS ON DRAFT MID-ATLANTIC OCS ORDER AND U.S. GEOLOGICAL SURVEY (USGS) DISCUSSIONS

OCS ORDER NO. 12

SUBPARAGRAPH 1.B.(1)

Comments. One Commenter suggested that the casing record, liner record, tubing record, and perforation record should be added to the list of items

NOTICES

which are not available as public information.

USGS Rationale. Items 28, 29, 30, and 31 were added to correct a typographical error in the draft OCS Order. These items are qualified as exceptions under the Freedom of Information Act.

SUBPARAGRAPH 1.B.(3)

Comments. One commenter suggests that the provision of the Pacific C which provides that suspension periods will be excluded in determining the five-year period after which certain data must be disclosed in the absence of production be included in the Mid-Atlantic Order.

USGS Rationale. The Order was not revised. The suggestion of the commenter is intended to provide for the possibility that the Secretary of the Interior or the court may order suspension of production. Since it is not anticipated that such suspensions will occur, we see no justification for including such a provision in the Order. This was included in the Pacific Area Order because of the specific conditions that existed in that Area.

SUBPARAGRAPH 1.D.

Comments. One commenter suggested that item 4, "Location of Well at Proposed Producing Zone," should be added as an item which is exempt from the available information list.

USGS Rationale. Item 4, "Location of Well at Proposed Producing Zone," was added to the subparagraph as an exception since this item is qualified as an exception under the Freedom of Information Act.

DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY CONSERVATION DIVISION EASTERN AREA

MID-ATLANTIC

OCS ORDER NO. 12

EFFECTIVE: JULY 1, 1976.

PUBLIC INSPECTION OF RECORDS

This Order is established pursuant to the authority prescribed in 30 CFR 250.11 and in accordance with 30 CFR 250.97 and 43 CFR Part 2. Requests for information made under the Freedom of Information Act, 5 U.S.C. § 552, will be governed by the provisions of 43 CFR Part 2 (40 F.R. 7304, February 19, 1975). Section 2.13 of 43 CFR says:

It is the policy of the Department of the Interior to make the records of the Department available to the public to the greatest extent possible, in keeping with the spirit of the Freedom of Information Act.

Section 2.15(c) of 43 CFR says:

A request for a record may be denied only if it is determined that (1) the record is exempt from disclosure (under the Freedom of Information Act) and (2) that withholding of the record is required by statute or Executive Order or supported by sound grounds.

The operator shall comply with the following requirements. All departures from the requirements specified in this Order shall be subject to approval pursuant to 30 CFR 250.12(b).

1. **Availability of records.** It has been determined that certain records pertaining to leases and wells in the Outer Continental Shelf and submitted under 30 CFR Part 250 shall be made available for public inspection,

as specified below, in the Area office. Certain other portions of these records have been determined to be exempt from disclosure. The reason for these exemptions is discussed in Section 4 of this Order.

A. **Form 9-152—Monthly report of operations.** All information contained on this form shall be available except the information required in the Remarks column.

B. **Form 9-330—Well completion or recompletion report and log.** (1) Prior to commencement of production, all information contained on this form shall be available, except Item 1a, Type of Well; Item 4, Location of Well, at top production interval reported below; Item 22, If Multiple Completion, How many; Item 24, Producing Interval; Item 26, Type Electric and Other Logs Run; Item 28, Casing Record; Item 29, Liner Record; Item 30, Tubing Record; Item 31, Perforation Record; Item 32, Acid, Shot, Fracture, Cement Squeeze, etc.; Item 33, Production; Item 37, Summary of Porous Zones; and Item 38, Geologic Markers.

(2) After commencement of production, all information shall be available, except Item 37, Summary of Porous Zones; and Item 38, Geologic Markers.

(3) If production has not commenced after an elapsed time of five years from the date of filing Form 9-330 as required in 30 CFR 250.38(b), all information contained on this form shall be available, except Item 37, Summary of Porous Zones; and Item 38, Geologic Markers. Within 90 days prior to the end of the 5-year period, the lessee or operator shall file a Form 9-330 containing all information requested on the form, except Item 37, Summary of Porous Zones; and Item 38, Geologic Markers, to be made available for public inspection. Objections to the release of such information may be submitted with the completed Form 9-330.

C. **Form 9-331—Sundry notices and report on wells.** (1) When used as a "Notice of Intention to" conduct operations, all information contained on this form shall be available, except Item 4, Location of Well, at top production interval; and Item 17, Describe Proposed or Completed Operations.

(2) When used as a "Subsequent Report of" operations, and after commencement of production, all information contained on this form shall be available, except information under Item 17 as to sub-surface locations and measured and true vertical depths for all markers and zones not placed on production.

D. **Form 9-331C—Application for permit to drill, deepen or plug back.** All information contained on this form, and location plat attached thereto, shall be available except Item 4, Location of Well at Proposed Production Zone; and Item 23, Proposed Casing and Cementing Program.

E. **Form 9-1869—Quarterly oil well test report.** All information contained on this form shall be available.

F. **Form 9-1870—Semi-annual gas well test report.** All information contained on this form shall be available.

G. **Multi-point back pressure test report.** All information contained on this form used to report the results of required multi-point back pressure test of gas wells shall be available.

H. **Sales of lease production.** Information contained on monthly Geological Survey computer printout showing sales volumes, value, and royalty of production of oil, condensate, gas and liquid products, by lease, shall be made available.

I. **Filing of reports.** All reports on Forms 9-152, 9-330, 9-331, 9-331C, 9-1869, 9-1870, and the forms used to report the results of multi-point back pressure tests, shall be filed in accordance with the following: All reports submitted on these forms shall include a

copy with the words "Public Information" shown on the lower right-hand corner. All items on the form not marked "Public Information" shall be completed in full; and such form, and all attachments thereto, shall not be available for public inspection. The copy marked "Public Information" shall be completed in full, except that the items described in 1(A), (B), (C), and (D) above, and the attachments relating to such items, may be excluded. The words "Public Information" shall be shown on the lower right-hand corner of this set. This copy of the form shall be made available for public inspection.

3. **Availability of inspection records.** All accident investigation reports, pollution incident reports, facilities inspection data, and records of enforcement actions are also available for public inspection.

4. **Information exempt from public inspection.** It has been determined that certain information as discussed in paragraphs 1.A, 1.B, 1.C, 1.D, and 2 of this Order is exempt from disclosure under exemption 9 of the Freedom of Information Act (5 U.S.C. 552 (b)(9)). This information has been determined to qualify as "geological and geophysical information and data including maps concerning wells."

HARRY A. DUPONT,
Area Oil and Gas Supervisor.

Approved:

MURSELL G. WAYLAND
Acting Chief, Conservation Division.

[FR Doc.76-19048 Filed 7-9-76; 8:45 am]

DEPARTMENT OF COMMERCE

Bureau of the Census

NUMBER OF EMPLOYEES, PAYROLLS, GEOGRAPHIC LOCATION, CURRENT STATUS AND KIND OF BUSINESS FOR THE ESTABLISHMENTS OF MULTIESTABLISHMENT COMPANIES

Determination for Surveys

In conformity with title 13, United States Code, sections 181, 224, and 225 and due notice of consideration having been published on June 2, 1976 (41 FR 22290), I have determined that a 1976 Company Organization Survey is needed to update company and establishment changes to the multiestablishment companies in the Standard Statistical Establishment List. The survey is designed to collect information on the number of employees, payrolls, geographic location, current status, and kind of business for the establishments of multiestablishment companies. The data will have significant application to the needs of the public and to governmental agencies and are not publicly available from nongovernmental or governmental sources.

Report forms will be furnished to firms included in the survey and additional copies of the form are available on request to the Director, Bureau of the Census, Washington, D.C. 20233.

I have, therefore, directed that a survey be conducted for the purpose of collecting these data.

VINCENT F. BARABBA,
Director,
Bureau of the Census.

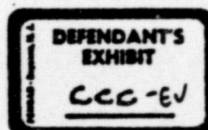
JULY 6, 1976.

[FR Doc.76-19077 Filed 7-9-76; 8:45 am]

Form 3300-1
(May 1976)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTOIL AND GAS LEASE OF SUBMERGED LANDS
UNDER THE OUTER CONTINENTAL SHELF LANDS ACT

Office	
Serial Number	
Cash Bonus	
Rental Rate	
Minimum Royalty Rate	Royalty Rate

This lease is made and effective as of _____ (hereinafter called the "Effective Date")
by and between the United States of America (hereinafter called the "Lessor"), by the
Bureau of Land Management, its authorized officer, and



(hereinafter called the "Lessee"). In consideration of the cash payment heretofore made by the Lessee to the Lessor and in consideration of the promises, terms, conditions, and covenants contained herein, the parties hereto agree as follows:

Sec. 1. Statutes and Regulations. This lease is made pursuant to the Outer Continental Shelf Lands Act of August 7, 1953 (67 Stat. 462; 43 U.S.C. Secs. 1331-1343) (hereinafter called the "Act"). This lease is subject to all the provisions of the Act and to all the terms, conditions, and requirements of the valid regulations promulgated by the Secretary of the Interior (hereinafter called the "Secretary") thereunder in existence upon the effective date of this lease, all of which are incorporated herein and, by reference, made a part hereof. This lease shall also be subject to regulations hereafter issued by the Secretary pursuant to his authority under section 5(a)(1) of the Act to prescribe and amend at any time such rules and regulations as he may determine to be necessary and proper in order to provide for the prevention of waste and for the conservation of the natural resources of the Outer Continental Shelf, and for the protection of correlative rights therein, which regulations shall be deemed incorporated herein and, by reference, made a part hereof when promulgated.

Sec. 2. Rights of Lessee. The Lessor hereby grants and leases to the Lessee the exclusive right and privilege to drill for, mine, extract, remove, and dispose of oil and gas deposits, except helium gas, in or under the following-described area of the Outer Continental Shelf of the United States:

containing approximately

(hereinafter referred to as the "leased area"), together with:

(a) the nonexclusive right to conduct within the leased area geological and geophysical explorations in accordance with applicable regulations;

(b) the nonexclusive right to drill water wells within the leased area and to use water produced therefrom for operations pursuant to the Act free of cost, provided that such drilling is conducted in accordance with procedures approved by the Regional Oil and Gas Supervisor of the Geological Survey (hereinafter called the "Supervisor"); and

(c) the right to construct or erect and to maintain within the leased area all artificial islands, platforms, fixed or floating structures, sea walls, docks, dredged channels and spurs, buildings, plants, telegraph or telephone lines and cables, pipelines, reservoirs, tanks, pumping stations, and other works and structures necessary to the full enjoyment of the rights granted by this lease, subject to compliance with applicable laws and regulations.

Sec. 3. Obligations of Lessee. The Lessee agrees:

(a) *Lease stipulations.* To comply with lease stipulations (a) number(s) attached hereto, and made a part hereof.

(b) *Rentals and royalties.* (1) To pay rentals and royalties as follows:

Rentals. With respect to each lease year commencing prior to a discovery of oil or gas in the leased area, to pay the Lessor on or before the first day of each such year, a rental of _____ per _____ or fraction thereof.

Minimum royalty. To pay the Lessor at the expiration of each lease year commencing after discovery, a minimum royalty of _____ per _____ or, if there is production, the difference between the actual royalty required to be paid with respect to such lease year and the prescribed minimum royalty, if the actual royalty paid is less than the minimum royalty.

Royalty on production. To pay the Lessor a royalty of _____ percent on amount or value of production removed, removed, or sold from the leased area. Gas of all kinds (except helium) is subject to royalty.

(2) It is expressly agreed that the Secretary may establish minimum values for purposes of computing royalty on production from this lease, due consideration being given to the price paid for gas or for a majority of production of the same field, or area, or to the price received by the Lessee, to posted prices, and to other relevant matters. Each such determination shall be made only after due notice to the Lessor and a reasonable opportunity has been afforded the Lessee to be heard.

(3) When paid in value, royalties on production shall be due and payable monthly on the last day of the month next following the month in which the production is obtained. When paid in production, such royalties shall be delivered at pipeline connections or in tanks provided by the Lessee. Such deliveries shall be made at reasonable times and intervals and, at the Lessor's option, shall be effected either (i) on or immediately adjacent to the leased area, without cost to the Lessor, or (ii) at a more convenient point closer to shore or on shore, in which event the Lessee shall be entitled to reimbursement for the reasonable cost of transporting the royalty substance to such delivery point. The Lessee shall not be required to provide storage for royalty taken in kind in excess of tankage required when royalty is paid in value. When payments are made in production the Lessee shall not be held liable for the loss or destruction of royalty oil or other liquid products in storage from causes over which the Lessee has no control.

(c) Bonds. To maintain at all times the bond required prior to the issuance of this lease and to furnish such additional security as may be required by the Lessor if, after operations or production have begun, the Lessor deems such additional security to be necessary.

(d) Wells. (1) To diligently drill and produce such wells as are necessary to protect the Lessor from loss by reason of production on other properties or, in lieu thereof, with the consent of the Supervisor, to pay a sum determined by the Supervisor as adequate to compensate the Lessor for failure to drill and produce any such well. In the event that this lease is not being maintained in force by other production of oil or gas in paying quantities or by other approved drilling or reworking operations, such payments shall be considered as the equivalent of production in paying quantities for all purposes of this lease.

(2) After due notice in writing, to diligently drill and produce such other wells as the Secretary may reasonably require in order that the leased area or any part thereof may be properly and timely developed and produced in accordance with good operating practice.

(3) At the election of the Lessee, to drill and produce other wells in conformity with any system of well spacing or production allotments affecting the area, field, or pool in which the leased area or any part thereof is situated, which is authorized or sanctioned by applicable law or by the Secretary.

(e) Payments. To make all payments to the Lessor by check, bank draft, or money order payable as indicated herein unless otherwise provided by regulations or by direction of the Secretary. Rental, royalties, and other payments shall be made payable to the United States Geological Survey and tendered to the Supervisor, except that filing charges, bonuses, and first year's rental shall be made payable to the Bureau of Land Management and remitted to the Manager of the appropriate field office of that Bureau.

(f) Inspection. To keep open at all reasonable times for the inspection of any duly authorized representative of the Lessor, the leased area and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, and records relative to operation and surveys or investigations on or with regard to the leased area or under the lease.

(g) Conduct of operations. To conduct all operations under this lease in accordance with applicable law and regulations.

(h) Indemnification. To indemnify and save the Lessor harmless against and from any and all claims of any nature whatever, including without limitation claims for loss or damage to property or injury to persons, caused by, or resulting from, any operation on the leased area conducted by or on behalf of the Lessee; provided that the Lessee shall not be held responsible to the Lessor under this subsection for any loss, damage, or injury caused by, or resulting from: (1) any negligent action of the Lessor other than the exercise or performance of (or the failure to exercise or perform) a discretionary function or duty on the part of a Federal agency whether or not the discretion involved is abused; or (2) the Lessee's compliance with an order or directive of the Lessor against which an appeal by the Lessee under 30 CFR 250.81 is filed before the cause of action for such a claim arises and is pursued diligently thereafter.

(i) Equal Opportunity Clause. The Lessee agrees that, during the performance of this lease:

(1) The Lessee will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Lessee will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Lessee agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Lessor setting forth the provisions of this Equal Opportunity clause.

(2) The Lessee will, in all solicitations or advertisements for employees placed by or on behalf of the Lessee, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(3) The Lessee will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the Lessor, advising the labor union or workers' representative of the Lessee's commitments

under this Equal Opportunity clause, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The Lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended, and the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The Lessee will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, as amended, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Secretary of the Interior and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the Lessee's noncompliance with the Equal Opportunity clause of this contract or with any of the said rules, regulations, or orders, this lease may be cancelled, terminated or suspended in whole or in part and the Lessee may be declared ineligible for further Government contracts or leases in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, as amended, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, as amended, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The Lessee will include the provisions of paragraphs (1) through (7) of this subsection 3(i) in every contract, subcontract, or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, as amended, so that such provisions will be binding upon each contractor, subcontractor, or vendor. The Lessee will take such action with respect to any contract, subcontract, or purchase order as the Secretary of the Interior may direct as a means of enforcing such provisions including sanctions for noncompliance: *Provided, however*, that in the event the Lessee becomes involved in, or is threatened with, litigation with a contractor, subcontractor, or vendor as a result of such direction by the Secretary of the Interior, the Lessee may request the United States to enter into such litigation to protect the interests of the United States.

(j) Certification of nonsegregated facilities. By entering into this lease, the Lessee certifies that Lessee does not and will not maintain or provide for Lessee's employees any segregated facilities at any of Lessee's establishments, and that Lessee does not and will not permit Lessee's employees to perform their services at any location, under Lessee's control, where segregated facilities are maintained. The Lessee agrees that a breach of this certification is a violation of the Equal Opportunity clause in this lease. As used in this certification, the term "segregated facilities" means, but is not limited to, any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment facilities, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The Lessee further agrees that (except where Lessee has obtained identical certifications from proposed contractors and subcontractors for specific time periods) Lessee will obtain identical certifications from proposed contractors and subcontractors prior to award of contracts or subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause; that Lessee will retain such certifications in Lessee's files; and that Lessee will forward the following notice to such proposed contractors and subcontractors (except where proposed contractor or subcontractor has submitted identical certifications for specific time periods). Notice to prospective contractors and subcontractors of requirement for certification of nonsegregated facilities. A Certification of Nonsegregated Facilities, as required by the May 9, 1967 order (32 F.R. 7429, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a contract or subcontract exceeding \$10,000, which is not exempt from the provisions of the Equal Opportunity clause. Certification may be submitted either for each contract and subcontract or for all contracts and subcontracts during a period (i.e., quarterly, semiannually, or annually).

(k) Assignment of lease. To file for approval with the appropriate office of the Bureau of Land Management any instrument of transfer of this lease, or any interest therein, required to be filed under applicable regulations, within the time and in the manner prescribed by the applicable regulations.

Sec. 4. Term. This lease shall continue for a period of 5 years from the effective date of this lease and so long thereafter as oil or gas may be produced from the leased area in paying quantities, or drilling or well reworking operations, as approved by the Secretary, are conducted thereon.

Sec. 5. Cooperative or Unit Plan. Lessee agrees that, within 30 days after demand by Lessor, Lessee will subscribe to and operate under such cooperative or unit plan for the development and operation of the area, field, or pool, or part thereof, embracing lands subject to this lease as the Secretary may determine to be practicable and necessary or advisable in the interest of conservation. Where any provision of a cooperative or unit plan of development which has been approved by the Secretary, and which by its terms affects the leased area or any part thereof, is inconsistent with a provision of this lease, the provision of such cooperative or unit plan shall govern.

Sec. 6. Reservations to Lessor. All rights in the leased area not expressly granted to the Lessee by the Act, the regulations, or this lease are hereby reserved to the Lessor. Without limiting the generality of the foregoing, such reserved rights include:

(b) *Geological and geophysical exploration rights.* The right to conduct the geological and geophysical exploration in the leased area which does not interfere with or endanger actual operations under this lease, and the right to grant such easements or rights-of-way upon, through, or in the leased area as may be necessary or appropriate to the working of other lands or to the treatment and shipment of products thereof by or under authority of the United States, its Lessee or Permittee.

(c) *Leases of sulfur and other minerals.* The right to grant leases of any mineral other than oil and gas within the leased area or any part thereof. No lease of other mineral shall authorize or permit the Lessee thereunder unreasonably to interfere with or endanger operations under this lease.

(d) *Purchase of production.* In time of war, or when the President of the United States shall so prescribe, the right of first refusal to purchase at the market price all or any portion of the oil or gas produced from the leased area, as provided in Section 12(b) of the Act.

(e) *Taking of royalties.* The right to determine whether royalty will be taken in the amount or the value of production.

(f) *Helium.* Pursuant to Section 12(f) of the Act, the ownership of and the right to extract helium from all gas produced under this lease.

(g) *Suspension of operations during war or national emergency.* Upon recommendation of the Secretary of Defense, during a state of war or national emergency declared by the Congress or President of the United States after August 7, 1953, the authority of the Secretary to suspend any or all operations under this lease, as provided in Section 12(e) of the Act: *Provided,* That just compensation shall be paid by the Lessor to the Lessee.

(h) *Restriction of exploration and operations.* The right, as provided in Section 12(d) of the Act, to restrict from exploration and operations the leased area or any part thereof which may be designated by and through the Secretary of Defense, with the approval of the President, as, or as part of, an area of the Outer Continental Shelf needed for national defense; and as long as such designation remains in effect no exploration or operations may be conducted on the surface of the leased area or the part thereof included within the designation except with the concurrence of the Secretary of Defense; and if operations or production under this lease within any such restricted area shall be suspended, any payments of rentals and royalty prescribed by this lease likewise shall be suspended during such period of suspension of operations and production, and the term of this lease shall be extended by adding thereto any such suspension period, and the Lessor shall be liable to the Lessee for such compensation as is required to be paid under the Constitution of the United States.

Sec. 7. Directional Drilling. A directional well drilled under the leased area from a surface location on nearby land not covered by this lease shall be deemed to have the same effect for all purposes of this lease as a well drilled from a surface location on the leased area. In such circumstances, drilling shall be considered to have been commenced on the leased area when drilling is commenced on the nearby land for the purpose of directionally drilling under the leased area, and production of oil or gas from the leased area through any directional well surfaced on nearby land or drilling or reworking of any such directional well shall be considered production or drilling or reworking operations (as the case may be) on the leased area for all purposes of this lease. Nothing contained in this paragraph is intended or shall be construed as granting to the Lessee any leasehold interests, licenses, easements, or other rights in or with respect to any such nearby land in addition to any such leasehold interests, licenses, easements, or other rights which the Lessee may have lawfully acquired under the Act or from the Lessor or others.

Sec. 8. Surrender of Lease. The Lessee may surrender this entire lease or any efficiently designated subdivision of the leased area by filing with the appropriate office of the Bureau of Land Management a written relinquishment, in triplicate, which shall be effective as of the date of filing. No surrender of this lease or of any portion of the leased area shall relieve the Lessee or his surety of the obligation to make payment of all accrued rentals and royalties or to abandon all wells on the area to be surrendered in a manner satisfactory to the Supervisor.

Sec. 9. Removal of Property on Termination of Lease. Upon the termination of this lease in whole or in part, or the surrender of the lease in whole or in part, as herein provided, the Lessee shall within a period of 1 year thereafter remove from the premises no longer subject to the lease all structures, machinery, equipment, tools, and materials in accordance with applicable regulations and orders of the Supervisor: *Provided, however,* That the Lessee may continue to maintain any such property on the leased area for whatever longer period it may be needed, as determined by the Supervisor, for producing wells or for drilling or producing on other leases.

Sec. 10. Remedies in Case of Default. (a) Whenever the Lessee fails to comply with any of the provisions of the Act, or of this lease, or of the regulations issued under the Act and in force and effect on the effective date of this lease, the lease shall be subject to cancellation in accordance with the provisions of Section 5(b) of the Act: *Provided, however,* That the 30-day notice provision applicable to non-producing leases under Section 5(b)(1) of the Act shall also apply as a prerequisite to the institution of any legal action by the Lessor to cancel this lease while it is in a producing status. Nothing in this subsection shall be construed to apply to, or require any notice with respect to, any legal action instituted by the Lessor other than an action to cancel the lease pursuant to Section 5(b) of the Act.

(b) Whenever the Lessee fails to comply with any of the provisions of the Act, or of this lease, or of any regulations promulgated by the Secretary under the Act, the Lessor may exercise any legal or equitable remedy or remedies which the Lessor may have, including appropriate action under the penalty provisions of Section 5(a)(2) of the Act; *however,* the remedy of cancellation of the lease may be exercised only under the provisions of Section 5(b) and Section 8(l) of the Act.

(c) A waiver of any particular violation of the provisions of the Act, or of this lease, or of any regulations promulgated by the Secretary under the Act, shall not prevent the cancellation of this lease or the exercise of any other remedy or remedies under paragraphs (a) and (b) of this section by reason of any other such violation or for the same violation occurring at any other time.

Sec. 11. Heirs and Successors in Interest. Each obligation hereunder shall extend to and be binding upon, and every benefit hereof shall inure to, the heirs, executors, administrators, successors, or assigns, of the respective parties hereto.

Sec. 12. Unlawful Interest. No member of, or Delegate to, Congress, or Resident Commissioner, after his election or appointment, or either before or after he has qualified, and during his continuance in office, and no officer, agent, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(1), shall be admitted to any share or part in this lease or derive any benefit that may arise therefrom; and the provisions of Section 3741 of the Revised Statutes (41 U.S.C. Sec. 22), as amended, and Sections 431, 432, and 433 of Title 18 of the United States Code, relating to contracts made or entered into, or accepted by or on behalf of the United States, form a part of this lease so far as the same may be applicable.

THE UNITED STATES OF AMERICA

(Signature of Lessee)

By

(Authorized Officer)

(Signature of Lessee)

(Title)

(Signature of Lessee)

(Date)

(Signature of Lessee)

(Continued on reverse)

3254

(Signature of Lessee)

(Signature of Lessee)

(Signature of Lessee)

(Signature of Lessee)

(Signature of Lessee)

(Signature of Lessee)

(Signature of Lessee)

(Signature of Lessee)

(Signature of Lessee)

(Signature of Lessee)

If this lease is executed by a corporation, it must bear the corporate seal.

Pages 3256 to 3289

is not

Included in this

appendix



3230



APPENDIX

Characteristics Of Inorganic Metal Pollutants

The following is taken from National Academy of Sciences, National Academy of Engineering (1972). 3291

References for this discussion have been omitted for brevity. See original sources for references.

Arsenic

Arsenic occurs in nature mostly as arsenides or pyrites. It is also found occasionally in the elemental form. Its consumption in the U.S. in 1968 amounted to 25,000 tons as As_2O_3 (U.S. Department of the Interior, Bureau of Mines 1969).¹²⁰ Arsenic is used in the manufacture of glass, pigments, textiles, paper, metal adhesives, ceramics, linoleum, and mirrors (Sullivan 1969),¹²¹ and its compounds are used in pesticides, wood preservatives, paints, and electrical semiconductors. Because of its poisonous action on microorganisms and lower forms of destructive aquatic organisms, it has been used in wood preservatives, paints, insecticides, and herbicides. Sodium arsenite has been used for weed control in lakes and in electrical semiconductors.

In small concentrations, arsenic is found naturally in some bodies of water. In its different forms, including its valence states, arsenic varies in toxicity. Trivalent arsenic is considerably more toxic than the pentavalent species in the inorganic form. It is acutely toxic to invertebrates and for this reason has found application in the control of *Teredo* and other woodborers in the As^{+3} form. Arsenious trioxide (As_2O_3) has been used for control of the shipworm *Bankia setacea*. In the arsenate form (As^{+5}), it is of relatively low toxicity, *Daphnia* being just immobilized at 18 to 31 mg/l sodium arsenate, or 4.3 to 7.5 mg/l as arsenic, in Lake Erie water (Anderson 1944,¹²² 1946¹²³). The lethal threshold of sodium arsenate for minnows has been reported as 234 mg/l as arsenic at 16 to 20 C (Willber 1969).¹²⁴

Arsenic is normally present in sea water at concentrations of 2 to 3 $\mu\text{g/l}$ and tends to be accumulated by oysters and other molluscan shellfish (Sautet et al. 1964,¹²⁵ Lowman et al. 1971¹²⁶). Willber (1969)¹²⁷ reported concentrations of 100 mg/kg in shellfish. Arsenic is a cumulative poison and has long-term chronic effects on both aquatic organisms and on mammalian species. A succession of small doses may add up to a final lethal dose (Buchanan 1962).¹²⁸ The acute effects of arsenic and its compounds on aquatic organisms have been investigated, but little has been done on the sub-lethal chronic effects.

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3232

Surber and Meehan (1931)²² found that fish-food organisms generally can withstand concentrations of approximately 1.73 mg/l of arsenious trioxide in sodium arsenite solution. Meinck et al. (1956)²³ reported that arsenic concentrations were toxic at 1.1 to 2.2 mg/l to pike perch (*Stizostedion vitreum*) in 2 days, 2.2 mg/l to bleak in 3 days, 3.1 mg/l to carp (*Cyprinus carpio*) in 4 to 6 days and to eels in 3 days, and 4.3 mg/l to crabs in 11 days.

Recommendation

Because of the tendency of arsenic to be concentrated by aquatic organisms, it is recommended that an application factor of 0.01 be applied to marine 96-hour LC50 data for the appropriate organisms most sensitive to arsenic. On the basis of freshwater and marine toxicity data available, it is suggested that concentrations of arsenic equal to or exceeding 0.05 mg/l constitute a hazard in the marine environment, and levels less than 0.01 mg/l present minimal risk of deleterious effects.

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Barium

Barium comes largely from ores (BaSO_4 , BaCO_3). It is being used increasingly in industry. The U.S. consumption in 1968 was 1.8 million tons, a growth of 78 per cent in 20 years (U.S. Department of the Interior, Bureau of Mines 1969).¹²² Barium is used in a variety of industrial applications, including paper manufacturing, fabric printing and dyeing, and synthetic rubber production.

All water- or acid-soluble barium compounds are poisonous. However, in sea water the sulfate and carbonate present tend to precipitate barium. The concentration of barium in sea water is generally accepted at about 20 $\mu\text{g/l}$ (Goldberg et al. 1971),¹²³ although it has been reported as low as 6.2 $\mu\text{g/l}$ (Bowen 1956).¹²⁴ Wolgemuth and Broecker (1970)¹²⁵ reported a range of 8 to 14 $\mu\text{g/l}$ in the Atlantic and 8 to 31 $\mu\text{g/l}$ in the Pacific, with the lower values in surface waters. Barium ions are thought to be rapidly precipitated or removed from solution by adsorption and sedimentation.

Bijan and Deschiens (1956)¹²⁶ reported that 10 to 15 mg/l of barium chloride were lethal to an aquatic plant and two species of snails. Bioassays with barium chloride showed that a 72-hour exposure to 50 mg/l harmed the nervous system of coho salmon (*Oncorhynchus kisutch*) and 158 mg/l killed 90 per cent of the test species (ORSANCO 1960).¹²⁷ Barium can be concentrated in goldfish (*Carassius auratus*) by a factor of 150 (Templeton 1958).¹²⁸ Soviet marine radioactivity studies showed accumulation of radioactive barium in organs, bones, scales, and gills of fish from the Northeast Pacific (Moiseyev and Kardashev 1964).¹²⁹ Lowman et al. (1971)¹³⁰ listed a concentration factor for barium of 17,000 in phytoplankton, 900 in zooplankton, and 8 in fish muscle.

In view of the widespread use of barium, the effects of low doses of this element and its compounds on marine organisms under different environmental conditions should be determined. Disposal of barium-containing wastes into waters when precipitates could affect rooted aquatics and benthic invertebrates should be avoided.

Recommendation

Because of the apparent concentration of barium by aquatic organisms and the resultant human health hazard, it is recommended that an application factor of 0.05 be applied to marine 96-hour LC_{50} data for the appropriate organisms most sensitive to barium. On the basis of data available at this time, it is suggested that concentrations of barium equal to or exceeding 1.0 mg/l constitute a hazard in the marine environment, and levels less than 0.5 mg/l present minimal risk of deleterious effects.

Cadmium levels in tissues of Ashy Petrel (*Oceanodroma homochroa*) from coastal waters of California were approximately twice as high as in tissues of Wilson's Petrel (*Oceanites oceanicus*) obtained in Antarctica, which had summered in the North Atlantic and Australian regions, respectively. Cadmium levels in tissues of the Snow Petrel (*Nelusetta nigra*), a species which does not leave the Antarctic ice pack region, obtained at Hallett Station, Antarctica, were of the same order of magnitude as those in the Wilson's Petrel. Cadmium levels in eggs of the Common Tern (*Sterna hirundo*) from Long Island Sound were in the order of 0.2 mg/kg dry weight, not appreciably higher than those in the Antarctic Tern (*Sterna vittata*) from the Antarctic with levels in the order of 0.1 mg/kg (Anderlini et al. *in press*).¹⁰⁰ Cadmium pollution may therefore be significant locally in estuaries, but on the basis of these limited data, it does not appear to be a problem in more remote marine ecosystems. However, in view of the comparatively unknown effects of cadmium on the marine ecosystem, its apparent concentration by marine organisms, and the human health risk involved in consumption of cadmium-contaminated seafood, it is suggested that there be no artificial additions of cadmium to the marine environment.

Recommendation

The panel recommends that an application factor of 0.01 be applied to marine 96-hour LC50 data for appropriate organisms most sensitive to cadmium. On the basis of data available at this time, it is suggested that concentrations of cadmium equal to or exceeding 0.01 mg/l constitute a hazard in the marine environment as well as to human populations, and levels less than 0.2 µg/l present minimal risk of deleterious effects. In the presence of copper and/or zinc at 1 mg/l or more, there is evidence that the application factor for cadmium should be lower by at least one order of magnitude.

In the absence of sufficient data on the effects of cadmium upon wildlife, it is recommended that cadmium criteria for aquatic life apply also to wildlife.

Cyanides

Most of the available information on toxicity of cyanides is for freshwater organisms, and is discussed in the Freshwater Aquatic Life and Wildlife section, p. 189.

3295

The cyanide radical is a constituent of many compounds or complex ions that may be present in industrial wastes. Cyanide-bearing wastes may derive from gas works, coke ovens, scrubbing of gases in steel plants, metal plating operations, and chemical industries. The toxicity of cyanides varies widely with pH, temperature, and dissolved oxygen concentration. The pH is especially important, since the toxicity of some cyanide complexes changes manyfold over the range commonly found in receiving waters.

"Free cyanide" (CN^- ion and HCN) occurs mostly as molecular hydrogen cyanide, the more toxic form, at pH levels of natural waters as well as in unusually acid waters. Fifty per cent ionization of the acid occurs at pH near 9.3. Free cyanide concentrations from 0.05 to 0.01 mg/l as CN have proved fatal to many sensitive fishes (Jones 1964),²⁷ and levels much above 0.2 mg/l are rapidly fatal for most species of fish. A level as low as 0.01 mg/l is known to have a pronounced, rapid, and lasting effect on the swimming ability of salmonid fishes.

Chemical determination of the concentration of undissociated, molecular HCN alone may be the best way to evaluate the danger of free cyanide to fish in waters receiving cyanide bearing wastes. Such tests may reveal the occurrence of harmful concentrations of HCN not predictable through bioassay of the wastes. Because an acceptable concentration of HCN or fraction of a LC50 of cyanides and cyanide-bearing effluents has not yet been positively determined, a conservative estimate must be made; and because levels as low as 0.01 mg/l have proved harmful under some conditions, a factor of 0.05 should be applied to LC50 levels.

Recommendation

As a guideline in the absence of data for marine organisms the panel recommends that an application factor of 0.1 be applied to marine 96-hour LC50 data for the appropriate organisms most sensitive to cyanide. On the basis of data available at this time it is suggested that concentrations of cyanide equal to or exceeding 0.01 mg/l constitute a hazard in the marine environment, and levels less than 0.005 mg/l present minimal risk of deleterious effects.

Chromium

3226

Chromium concentrations in seawater average about 0.04 $\mu\text{g/l}$ (Food and Agriculture Organization 1971),¹⁸¹ and concentration factors of 1,600 in benthic algae, 2,300 in phytoplankton, 1,900 in zooplankton, 410 in soft parts of molluscs, 100 in crustacean muscle, and 70 in fish muscle have been reported (Lowman et al. 1971).²²¹

The toxicity of chromium to aquatic life will vary with valence state, form, pH, synergistic or antagonistic effects from other constituents, and the species of organism involved.

In long-term studies on the effects of heavy metals on oysters, Haydu (unpublished data)²²² showed that mortalities occur at concentrations of 10 to 12 $\mu\text{g/l}$ chromium, with highest mortality during May, June, and July. Rayment and Shields (1964)²²³ reported threshold toxicity levels of 5 mg/l chromium for small prawns (*Leander squilla*), 20 mg/l chromium in the form $\text{Na}_2\text{Cr}_2\text{O}_7$ for the shore crab (*Carcinus maenas*), and 1 mg/l for the polychaete *Nereis virens*. Pringle et al. (1968)²²⁴ showed that chromium concentrations of 0.1 and 0.2 mg/l, in the form of $\text{K}_2\text{Cr}_2\text{O}_7$, produced the same mortality with molluscs as the controls. Doudoroff and Katz (1953)²²⁵ investigated the effect of $\text{K}_2\text{Cr}_2\text{O}_7$ on mummichogs (*Fundulus heteroclitus*) and found that they tolerated a concentration of 200 mg/l in sea water for over a week.

Holland et al. (1960)²²⁶ reported that 51.8 mg/l of chromium as potassium chromate in sea water gave 100 per cent mortality to coho salmon (*Oncorhynchus kisutch*). Gooding (1954)²²⁷ found that 17.8 mg/l of hexavalent chromium was toxic to the same species in sea water.

Clendenning and North (1950)²²⁸ showed that hexavalent chromium at 5.0 mg/l chromium reduced photosynthesis in the giant kelp (*Macrocystis pyrifera*) by 50 per cent during 4 days exposure.

Most of the available information on toxicity of chromium is for freshwater organisms, and it is discussed in Section III, p. 180.

207 mg/l d.c. 1-
170 mg/l sea

17.8 mg/l

The chronic toxicity of hexavalent chromium to fish has been studied by Olson (1958),⁴³ and Olson and Foster (1956,⁴³ 1957).⁴⁴ Their data demonstrated a pronounced cumulative toxicity of chromium to rainbow trout and chinook salmon (*Oncorhynchus tshawytscha*). Doudoroff and Katz (1953)⁴⁵ found that bluegills (*Lepomis macrochirus*) tolerated a 45 mg/l level for 20 days in hard water. Cairns (1956),⁴⁶ using chromic oxide (CrO_3), found that a concentration of 104 mg/l was toxic to bluegills in 6 to 84 hours. Bioassays conducted with four species of fish gave 96-hour LC_{50} 's of hexavalent chromium that ranged from 17 to 118 mg/l, indicating little effect of hardness on toxicity (Pickering and Henderson 1966).⁴⁷

Recently some tests of chronic effects on reproduction of fish have been carried out. The 96-hour LC_{50} and safe concentrations for hexavalent chromium were 33 and 1.0 mg/l for fathead minnows (*Pimephales promelas*) in hard water (Pickering unpublished data 1971),⁴⁸ 50 and 0.6 mg/l for brook trout (*Salvelinus fontinalis*) in soft water, and 69 and 0.3 mg/l for rainbow trout (*Salmo gairdneri*) in soft water (Benoit unpublished data 1971).⁴⁹ Equivalent values for trivalent chromium were little different: 27 mg/l for the 96-hour LC_{50} , and 1.0 mg/l for a safe concentration for fathead minnows in hard water (Pickering unpublished data 1971).⁴⁸

For *Daphnia* the LC_{50} of hexavalent chromium was reported as 0.05 mg/l, and the chronic no-effect level of trivalent chromium on reproduction was 0.33 mg/l (Biesinger and Christensen, unpublished data 1971).⁴⁸ Some data are available concerning the toxicity of chromium to algae. The concentrations of chromium that inhibited growth for the test organisms are as follows (Hervey 1949):⁴⁰ Chlorococcales, 3.2 to 6.4 mg/l; Euglenoids, 0.32 to 1.6 mg/l; and diatoms, 0.032 to 0.32 mg/l. Patrick (unpublished data 1971)⁴⁷ found that 50 per cent growth reduction for two diatoms in hard and soft water occurred at 0.2 to 0.4 mg/l chromium. 2.50

Thus it is apparent that there is a great range of sensitivity to chromium among different species of organisms and in different waters. Those lethal levels reported above are 17 to 118 mg/l for fish, 0.05 mg/l for invertebrates, and 0.032 to 6.4 mg/l for algae, the highest value being 3,700 times the lowest one. The apparent "safe" concentration for fish is moderately high, but the recommended maximum concentration of 0.05 mg/l has been selected in order to protect other organisms, in particular *Daphnia* and certain diatoms which are affected at slightly below this concentration.

3253

Recommendation

Because of the sensitivity of lower forms of aquatic life to chromium and its accumulation at all trophic levels, it is recommended that an application factor of 0.01 be applied to marine 96-hour LC50 data for the appropriate organisms most sensitive to chromium. On the basis of data available at this time, it is suggested that concentrations of chromium equal to or exceeding 0.1 mg/l constitute a hazard to the marine environment, and levels less than 0.05 mg/l present minimal risk of deleterious effects. In oyster areas, concentrations should be maintained at less than 0.01 mg/l.

Copper

Copper has been used as a pesticide for eliminating algae in water, and its salts have bactericidal properties. Copper is toxic to invertebrates and is used extensively in marine antifouling paints which release it to the water. It is also toxic to juvenile stages of salmon and other sensitive species (Sprague 1964,²⁴⁷ 1965,²⁴⁸ Sigler et al. 1966,²⁴⁹ Cope 1966²⁵⁰).

Copper was the fifth metal in U.S. consumption during 1968, following iron, manganese, zinc, and barium (U.S. Department of the Interior Bureau of Mines 1969).²⁵¹ Copper is used for such products as high transmission wires, containers, utensils, and currency because of its noncorroding properties.

Copper is widely distributed in nature and is present in sea water in concentrations ranging from 1 to 25 µg/l. In small amounts, copper is nonlethal to aquatic organisms; in fact, it is essential to some of the respiratory pigments in animals (Willner 1969).²⁵² Copper chelated by lignin or citrate has been reported to be as effective as copper ion in controlling algae, but apparently it is not as toxic to fish (Ingols 1955).²⁵³ Copper affected the polychaete *Nereis virens* at levels of approximately 0.1 mg/l (Raymont and Shields 1964)²⁵⁴ and the shore crab (*Carcinus maenas*) at 1 to 2 mg/l (Willner 1969).²⁵⁵ Copper at concentrations of 0.06 mg/l inhibited photosynthesis of the giant kelp (*Macrocystis pyrifera*) by 30 per cent in 2 days and 70 per cent in 4 days (Clendenning and North 1969).²⁵⁶

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Copper is toxic to some oysters at concentrations as low as 0.1 mg/l (Galtsoff 1932)¹⁴² and lethal to oysters at 3 mg/l (Willer 1969).¹⁴³ The American oyster (*Crassostrea virginica*) is apparently more sensitive to copper than the Japanese species (*Crassostrea gigas*) (Reish 1964).¹⁴⁴ The 96-hour LC50 for Japanese oysters exposed to copper has been reported as 1.9 mg/l (Fujiya 1960).¹⁴⁵ However, oysters exposed to concentrations as low as 0.13 mg/l turn green in about 21 days (Galtsoff 1932).¹⁴⁶ Although such concentrations of copper are neither lethal to the oysters nor, apparently, harmful to man, green oysters are unmarketable because of appearance. Therefore, in the vicinity of oyster grounds, the recommendation for maximum permissible concentrations of copper in the water is based on marketability, and it is recommended that copper not be introduced into areas where shellfish may be contaminated or where seaweed is harvested.

Copper acts synergistically when present with zinc (Willer 1969),¹⁴⁷ zinc and cadmium (LaRoche 1972),¹⁴⁸ mercury (Corrier and Sparrow 1956),¹⁴⁹ and with pentachlorophenolate (Cervenka 1959).¹⁵⁰ Studies on sublethal effects of copper show that Atlantic salmon (*Salmo salar*) will avoid concentrations of 0.0024 mg/l in laboratory experiments (Sprague et al. 1965,¹⁵¹ Saunders and Sprague 1967,¹⁵² Sprague 1971¹⁵³).

Copper is accumulated by marine organisms, with concentration factors of 30,000 in phytoplankton, 5,000 in the soft tissues of mollusks, and 1000 in fish muscle (Lowman et al. 1971).¹⁵⁴

Bryan and Hummerstone (1971)¹⁵⁵ reported that the polychaete *Nereis diversicolor* shows a high take-up of copper from copper-rich sediments and develops a tolerance. Mobile predators feeding on this species could receive doses toxic to themselves or accumulate concentrations that would be toxic to higher trophic levels.

Recommendation

It is recommended that an application factor of 0.01 be applied to marine 96-hour LC50 data for the appropriate organisms most sensitive to copper. On the basis of data available at this time, it is suggested that concentrations of copper equal to or exceeding 0.05 mg/l constitute a hazard in the marine environment, and levels less than 0.01 mg/l present minimal risk of deleterious effects.

Iron

Because of the widespread use of iron by man for his many industrial activities, iron is a common contaminant in the aquatic environment. Iron may enter water naturally from iron ore deposits; but iron is more often introduced from acid mine drainage, mineral processing, steel pickling, and corrosion. Iron usually occurs in the ferrous form, when it is released from processing plants or in mine drainage, but becomes rapidly oxidized to the ferric form in natural surface waters. The ferric salts form gelatinous hydroxides, agglomerate and flocculate, settling out on the bottom or becoming adsorbed on various surfaces. Depending on the pH and Eh, groundwater may contain a considerable amount of iron in solution, but well aerated waters seldom contain high, dissolved iron. In the marine environment, iron is frequently present in organic complexes and in adsorbed form on particulate matter.

Most of the investigations on biological effects of iron have been done in fresh water (Knight 1901,²⁹² Bandt 1918,²⁹⁷ Minkina 1946,²⁹⁹ Southgate 1948,³⁰⁰ Lewis 1960,³¹⁵ ORSANCIO 1960³¹⁶). Deposition of iron hydroxides on spawning grounds may smother fish eggs, and the hydroxides may irritate the gills and block the respiratory channels of fishes (Southgate 1948,³⁰⁰ Lewis 1960³¹⁵). Direct toxicity of iron depends on its valence state and whether it is in solution or suspension.

Warnick and Bell (1909)²⁹⁷ examined the effects of iron on mayflies, stoneflies, and caddisflies and obtained a 96-hour LC₅₀ of 0.32 mg/l for the three insects. Dowden and Bennett (1965)³²³ examined the effect of ferric chloride to *Daphnia magna* in static acute bioassays. They noted LC50's of 36, 21, and 15 mg/l for 1, 2, and 4 days, respectively.

Ferric hydroxide flocs removed the diatoms in the process of flocculation and settling, coating the bottom; and the iron precipitate coated the gills of white perch (*Morone americana*), minnows, and silversides in upper Chesapeake Bay (Olson et al. 1941).³²⁴

Tests on three types of fish gave a lethality threshold for iron at 0.2 mg/l (Minkina 1946)²⁹⁹ and on carp at 0.9 mg/l if the pH was 5.5 or lower. Etzeling (1928)³¹⁸ found that 10 mg/l of iron caused serious injury or death to rainbow trout (*Salmo gairdneri*) in 5 minutes. La Roze (1955)³¹⁹ reported that dogfish were killed in 3 hours at 5 mg/l iron, whereas other research (National Council for Stream Improvement 1953)³²⁵ indicated no deaths during one week at 1 to 2 mg/l.

Because of the slightly alkaline condition of sea water, much of the iron introduced to the sea precipitates. This adds a further problem of iron hydroxide flocs contaminating bottom sediments where rooted aquatics and invertebrates could be affected.

Special consideration should be given to avoiding discharge of iron-containing effluents into waters where commercially important bottom species or important food organisms dwell (e.g., oysters, clams, scallops, holsters, crabs, shrimp, halibut, flounder, and demersal fish eggs and larvae).

3301

Recommendation

On the basis of data available at this time, it is suggested that concentrations of iron equal to or exceeding 0.3 mg/l constitute a hazard to the marine environment, and levels less than 0.05 mg/l present minimal risk of deleterious effects.

10003 gm

Lead

The present rate of input of lead into the oceans is approximately ten times the rate of introduction by natural weathering, and concentrations of lead in surface sea water are greater than in deeper waters (Chow and Patterson 1966).¹³⁸ The isotope composition of the lead in surface waters and in recent precipitation is more similar to that of mined ore than to that in marine sediments (Chow 1968).¹³⁹ There are almost no data, however, that would suggest that the higher concentrations of lead in surface sea water derived from lead transported through the atmosphere have resulted in higher lead concentrations in marine wildlife. Lead concentrations in Greenland snow have been shown to be 16 times higher in 1954 than in 1904 (Murozumi et al. 1969).¹⁴⁰ In 1968 an estimated 1.8×10^5 tons of lead were introduced to the atmosphere as a result of the combustion of leaded gasoline (Council on Environmental Quality 1971).¹⁴¹ This represents 14 per cent of the total lead consumption of the United States for that year. Lead poisoning of zoo animals in New York City was attributed to their breathing lead-contaminated air (Bazell 1971).¹⁴²

Blood serum aldolase activity in higher animals exposed to small amounts of lead increased, although there were no overt signs or symptoms of poisoning (Yaverbaum 1963,¹⁴³ Wilber 1969¹⁴⁴). Chronic lead poisoning in man is symptomatically similar to multiple sclerosis (Falkowska et al. 1964).¹⁴⁵ Muscular dystrophy has been reported as occurring in fishes and amphibians (Stein 1962,¹⁴⁶ Wilber 1969¹⁴⁷) and in view of these findings could, in fact, be unnatural.

Data are needed on the sublethal, long-term effects of lead on aquatic organisms, particularly those in sea water. Evidence of deleterious effect to freshwater fish has been reported for concentrations of lead as low as 0.1 mg/l (Jones 1938).¹⁴⁸

Wilder (1952)²⁰ reported lobster dying in 6 to 20 days when held in lead-lined tanks. Pringle (unpublished data)²¹ observed a 12-week LC50 of 0.5 mg/l lead and an 18-week LC50 of 0.3 mg/l lead with the oyster (*Crassostrea virginica*). There was noticeable change in gonadal and mantle tissue following 12 weeks exposure at concentrations of 0.1 to 0.2 mg/l of lead. Calabrese et al. (unpublished data)²² found a 48-hour LC25 of 1.73 mg/l and an LC50 of 2.45 mg/l for oyster eggs of the same species.

North and Clendenning (1958)²³ reported that lead nitrate at 4.1 mg/l of lead showed no deleterious effect on the photosynthesis rate in kelp (*Macrocystis pyrifera*) exposed for four days. They concluded that lead is less toxic to kelp than mercury, copper, hexavalent chromium, zinc, and nickel.

Recommendation

In the absence of more definitive information on the long-term chronic effect of lead on marine organisms, it is recommended that concentrations of lead in sea water should not exceed 0.02 of the 96-hr LC50 for the most sensitive species, and that the 24-hour average concentration should not exceed 0.01 of the 96-hour LC50. On the basis of data available at this time it is suggested that concentrations of lead equal to or exceeding 0.05 mg/l constitute a hazard in the marine environment, and levels less than 0.01 mg/l present minimal risk of deleterious effects. Special effort should be made to reduce lead levels even further in oyster-growing areas.

Manganese

3313

Manganese is one of the most commonly used metals in industry. It occurs widely in ores on land and in nodules in the deep sea. U.S. consumption in 1958 exceeded 2.2 million tons, a 45 per cent increase in 20 years (U.S. Department of Interior, Bureau of Mines 1966).¹²⁰ The metal is alloyed with iron to produce steel and in smaller quantities with copper for manganese bronze. Its salts are used in inks and dyes, in glass and ceramics, in matches and fireworks, for dry-cell batteries, and in the manufacture of paints and varnishes.

Manganese is often found with iron in ground waters, and it can be leached from soil and occur in drainage in high concentrations. The carbonates, oxides, and hydroxides are slightly soluble, so that manganous and manganic ions are rarely present in surface water in excess of 1 mg/l. Manganese is present in sea water at about 2 µg/l in the Mn^{+2} form, and is concentrated through biochemical processes to form manganese nodules, found mainly in the deep sea.

Manganese may have different effects on the lower trophic levels in fresh water and sea water. Concentrations of manganese above 0.005 mg/l had a toxic effect on certain algae in reservoirs (Guseva 1937,¹²¹ 1939¹²²), while 0.0005 mg/l in sea water stimulated growth and multiplication of certain phytoplankton (Harvey 1947).¹²³ Anderson (1944)¹²⁴ reported the threshold of immobilization of *Daphnia magna* as 0.63 mg/l of $KMnO_4$, and the threshold concentration for immobilization of *Daphnia magna* in Lake Erie water as 50 mg/l of $MnCl_2$ (Anderson 1948).¹²⁵ Bringmann and Kuhn (1959a)¹²⁶ reported the threshold effect for the same species as 50 mg/l of $MnCl_2$ as manganese in River Havel water at 23 C.

For the flatworm *Polyselis nigra*, the threshold concentration of manganese was reported as 700 mg/l as manganese chloride and 660 mg/l as manganese nitrate (Jones 1940).¹²⁷ Tests on organisms in which fish feed, i.e., crustacea, worms, and insect larvae, showed no apparent harm at 15 mg/l of manganese during a 7-day exposure (Schweiger 1957).¹²⁸ River crayfish were found to tolerate 1 mg/l (Meinck et al. 1956).¹²⁹

The toxicity of manganese to fish depends on a number of factors which may vary from one situation to another. There is an apparent antagonistic action of manganese toward nickel toxicity for fish (Blahaum and Nichols 1956).¹³⁰ This may be true also for cobalt and manganese in combination, as noted for terrestrial plant life (Ahmed and Twyman 1953).¹³¹

Stickleback survived 50 mg/l manganese as manganese sulphate for 3 days, whereas eels withstood 2700 mg/l for 50 hours (Doudoroff and Katz 1953).¹²⁸ The lethal concentration of manganese for stickleback was given as 40 mg/l by Jones (1939),¹²⁹ and he noted that the toxic action was slow. The minimum lethal concentration of manganese nitrate for sticklebacks in tap water has been reported to be 40 mg/l as manganese (Anderson 1948,¹³⁰ Murdock 1953).¹³¹

The average survival times of stickleback in manganous nitrate solution were one week at 50 mg/l, four days at 100 mg/l, two days at 150 mg/l, and one day at 300 mg/l, all measured as manganese (Murdock 1953).¹³¹ Young eels tolerated 1500 mg/l manganous sulphate for more than 25 hours (Doudoroff and Katz 1953).¹²⁸ Oshima (1931)¹³² and Iwao (1936)¹³³ reported the lethal thresholds of manganous chloride and manganous sulphate for fish in Japan to be about 2400 and 1240 mg/l of manganese, respectively. They found that permanganates (Mn^{4+}) killed fish at 2.2 to 4.1 mg/l manganese in 8 to 18 hours, but this high oxidation form is quite unstable in water. Tench, carp, and trout tolerated 15 mg/l of manganese during 7 days exposure (Schweiger 1957).¹³⁴

Manganous chloride was found to be lethal to minnows (*Fundulus*) in fresh water in six days at 12 mg/l $MnCl_2$; for the small freshwater fish *Orizias*, the 24 hour lethal concentration was about 7850 mg/l (Doudoroff and Katz 1953).¹²⁸ and for other fish 5500 mg/l (Oshima 1931,¹³² Iwao, 1936¹³³). The highest concentration tolerated by eels for 50 hours was 6300 mg/l (Doudoroff and Katz 1953).¹²⁸ Meinck et al. (1956)¹³⁵ noted the first toxic effects for fish of $MnCl_2$ at 330 mg/l, with the lethal concentration at 800 mg/l.

Only a few studies of sublethal effects of manganese on fish have been reported. Ludemann (1953)¹³⁶ noted some of the symptoms of toxicity of manganese to fish, crabs, and fish food organisms. Abou-Donfa and Menzel (1967)¹³⁷ noted an effect of 1.25×10^{-4} M manganese (6.9 mg/l) on the enzyme acetylcholinesterase in shiner perch.

In studies on the uptake of radiomucelides on the Pacific testing grounds of Bikini and Eniwetok, it was found that the neutron-induced isotope of manganese ^{54}Mn was concentrated by as much as 4×10^4 in phytoplankton and 12,000 in the muscle or soft tissue of mollusks (Lowman 1960,¹³⁸ Lowman et al. 1971¹³⁹). Goldberg et al. (1971)¹⁴⁰ list the concentration factor of manganese in marine plants and animals as approximately 3000.

Recommendation

In view of the evidence for concentration of manganese by marine organisms, an application factor of 0.02 of the 96 hr LC50 for the most sensitive species to be protected is recommended.

Until more complete information on acute and sublethal effects of manganese on marine organisms is available, it is suggested that concentrations of 0.1 mg/l or more of total manganese in the marine environment may constitute a hazard, and concentrations of less than 0.02 mg/l present minimal risk.

Mercury

Mercury naturally leaches from cinnabar (HgS) deposits. Man-made sources of mercury have been in plastics manufacture, where mercury oxide is used as a catalyst, chlor-alkali plants where mercury cells are used, mercurial stannicides used in the pulp and paper industry and in other forest product anti-fungal applications, seed dressings used in combatting smuts and other fungal diseases afflicting seeds, and in anti-fouling paints. An estimated 5000 tons of mercury per year are transferred from the continents to the oceans as a result of continental weathering (Klein and Goldberg 1970).¹⁰² Global production of mercury is currently about twice as high, in the order of 9000 metric tons per year (Hammond 1971).¹⁰³ The burning of petroleum releases in the order of 4000 tons of mercury into the atmosphere per year (Bertine and Goldberg 1971).¹⁰⁴ A conservative estimate of the amount of mercury released per year into the global environment from the burning of coal is in the order of 3000 tons (Joensuu 1971).¹⁰⁵ The total amount of mercury estimated to be in the oceans is in the order of 10^6 metric tons, approximately three orders of magnitude higher than the total amount of mercury consumed in the United States since 1900. Mercury in marine organisms is, therefore, most probably of natural origin except in localized areas.

One hundred and eleven persons were reported poisoned, 41 died, and others suffered serious neurological damage as a result of eating fish and shellfish which had been contaminated with mercury discharged into Minamata Bay by a plastics manufacturing plant between 1950 and 1960 (Irukayama 1967).¹⁰⁷ In 1965, another poisoning incident was reported in Niigata, Japan, where 5 people died and 26 suffered irreversible neurological damage (Ui 1967).¹⁰⁸ In Minamata it was also found that cats eating the contaminated fish and shellfish took suicidal plunges into the sea, an uncommon occurrence with these mammals (Ui and Kitamura 1970).¹⁰⁹

3305

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3306

Metallic mercury can be converted by bacteria into methyl mercury (Jensen and Jernelöv 1969,¹⁷¹ Jernelöv 1969,¹⁷² Lofroth 1969¹⁷³). Organometallic mercury is much more toxic than the metallic mercury and enters the food cycle through uptake by aquatic plants, lower forms of animal life, and fish (Jernelöv 1969).¹⁷¹ The concentration factor of mercury in fish was reported as 3,000 and higher (Hannerz 1968,¹⁷⁷ Johnels and Westermarck 1969¹⁷⁸). A voluntary form of control was imposed in Sweden where anglers were requested not to eat more than one fish per week from a given lake to minimize human intake.

High mercury concentrations in birds and fish were reported on the Canadian prairies in 1969 (Fimreite 1970,¹⁸⁰ Wolosser et al. 1970,²⁰¹ Bligh 1971²⁰²). The source of the mercury in the birds was apparently mercurial seed dressing consumed with grain by the birds; whereas in fish, mercury came largely from emissions of a chlor-alkali plant using a mercury cell.

The Food and Drug Directorate of Canada set a level of 0.5 parts per million as the maximum permissible concentration in fish products. The 0.5 parts per million level was set as an interim guideline, not a regulation based on any known safe level for mercury (Canada Food and Drug Directorate, *personal communication*).²¹¹ A similar guideline was adopted in the U.S. (Kolbye 1970).²⁰⁴ These limits were based on the lethal concentrations found in Minamata Bay, Japan, and on the levels set by the World Health Organization (WHO) in cooperation with the Food and Agricultural Organization (FAO). The level set by WHO/FAO was 0.05 ppm, based on total food (WHO 1967).²⁰⁶ The concentrations which were found lethal to the Japanese consuming fish and shellfish contaminated by mercury were 10 to 50 mg/kg total mercury (Birke et al. 1968).¹⁹¹ The Swedish limit was 1.0 ppm of mercury in fish (Perglund and Wretling 1967)¹⁹³ based on dry weight, which is equivalent to 0.2 ppm wet weight (Wallace et al. 1971).²⁰³

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Although the emphasis has been on the effects of mercury on man, aquatic organisms can be affected by various mercury compounds. Mercury markedly alters the epithelium of skin and gills in fishes (Schweiger 1957).¹²⁴ Mercuric chloride in water containing developing eggs of *Paracentrotus lividus* brought about a severe disturbance of development at 10 $\mu\text{g/l}$ (Soyer 1963).¹²⁵ A concentration of 5 $\mu\text{g/l}$ retarded development markedly. These studies suggested that the threshold for harmful effects of mercuric chloride on developing eggs of *Paracentrotus* was around 2 to 3 $\mu\text{g/l}$ (Soyer 1963).¹²⁶ Studies conducted on developing salmon eggs (*Oncorhynchus nerka* and *O. gorbuscha*) at the International Pacific Salmon Fisheries Commission Laboratory in Cultus Lake, B.C., showed that concentrations of mercury at levels exceeding 3 $\mu\text{g/l}$ mercury derived from mercuric sulfate led to severe deformities (Servizi, unpublished data).¹²⁷ Studies are needed to examine the effects of those concentrations which are accumulated by fish over a longer period of time.

Ukeles (1962)¹²⁸ reported that 60 $\mu\text{g/l}$ of ethyl mercury phosphate was lethal to all species of marine phytoplankton tested, and that as little as 0.1 to 0.6 $\mu\text{g/l}$ of alkyl mercury introduced into sea water will inhibit photosynthesis and growth. Clendenning and North (1960)¹²⁹ reported that mercury added as mercuric chloride caused 50 per cent inactivation of photosynthesis of giant kelp (*Macrocystis pyrifera*) at 50 $\mu\text{g/l}$ during 4 days exposure, a 15 per cent decrease in photosynthesis at 100 $\mu\text{g/l}$ in 1 day, and complete inactivation in 4 days.

Woeike (1961)¹³⁰ reported that 27 $\mu\text{g/l}$ of mercury as mercuric chloride was lethal to bivalve larvae. The learning behavior of goldfish (*Carassius auratus*) was affected after two days by 3 $\mu\text{g/l}$ mercuric chloride (Weir and Hine 1970).¹³¹ Trace amounts of copper increase the toxicity of mercury (Corner and Sparrow 1956).¹⁴³

Mercury concentrations in tissues of the Ashy Petrel (*Oceanodroma homochroa*) from the coastal waters of California, the site of most of the mercury mines in the United States, are in the same order of magnitude as mercury concentrations in tissues of the Snow Petrel (*Pelagodroma nivea*), which inhabits the Antarctic pack ice. Mercury concentrations in nine eggs of the Common Tern (*Sterna hirundo*) from Long Island Sound were only slightly higher than in nine eggs of the Antarctic Tern (*Sterna vittata*) from the Antarctic (Andersini et al. in press).¹⁴⁰

Environmental residues of mercury in Sweden, as measured by concentrations of mercury in feathers of several species of birds, rose dramatically in the years following 1910 and were attributed to alkyl-mercury compounds used as seed dressings (Borg et al. 1966).¹²³ This use of mercury caused the death of numbers of seed-eating birds (Borg et al. 1969).¹²⁴ but it does not necessarily contaminate aquatic ecosystems (Johnels and Westermarck 1969).¹²⁵ Feathers of two species of fish-eating birds, the Osprey (*Pandion haliaetus*) and the Great-crested Grebe (*Pelecanus cristatus*), have shown a gradual increase in mercury concentration since approximately 1900, paralleling the increase in industrial use of mercury in Sweden (Johnels and Westermarck 1969).¹²⁶ Experimental work in Sweden has shown that when pheasants were fed wheat treated with methyl-mercury dicyandiamide, decreased hatchability of eggs was associated with mercury concentrations in the eggs from 1.3 to 2.0 mg/kg of the wet weight contents (Borg et al. 1969).¹²⁷ It has been suggested that environmental mercury may impair the reproductive capacity of bird species at the tops of food chains, such as falcons (Fimreite et al. 1970).¹²⁸ and in Finland mercury may have contributed to the decline of the Whitetailed Sea Eagle (*Haliaetus albicilla*) in regions where the species feeds upon marine fish and marine birds (Henriksson et al. 1966).¹²⁹ Conclusive evidence that mercury has impaired the reproductive capacity of any species of wildlife, however, has not yet been obtained and further research is necessary. Fish-eating birds and mammals are the species most likely to be affected because of their position at the top of the food chain.

The high natural levels of mercury in the marine environment and the significant additions due to natural weathering, as well as the documented hazard to marine aquatic life and to humans through marine foods, make it desirable to eliminate inputs of mercury to the marine environment beyond those occurring through continental weathering.

Recommendation

On the basis of data available at this time, it is suggested that concentrations of mercury equal to or exceeding 0.10 $\mu\text{g/l}$ constitute a hazard in the marine environment.

In the absence of sufficient data on the effects of mercury in water upon wildlife, the recommendations established to protect aquatic life and public water supplies should also apply to protect wildlife.

Nickel

3339

Nickel does not occur naturally in elemental form. It is present as a constituent in many ores, minerals and soils, particularly in serpentine-rock-derived soils.

Nickel is comparatively inert and is used in corrosion-resistant materials, long-lived batteries, electrical contacts, spark plugs, and electrodes. Nickel is used as a catalyst in hydrogenation of oils and other organic substances. Its salts are used for dyes in ceramic, fabric, and ink manufacturing. Nickel may enter waters from mine wastes, electroplating plants, and from atmospheric emissions.

Nickel ions are toxic, particularly to plant life, and may exhibit synergism when present with other metallic ions. Nickel salts in combination with a cyanide salt form moderately toxic cyanide complexes which, as nickel sulfate combined with sodium cyanide, gave a 48-hour LC50 of 2.5 mg/l and a 96-hour LC50 of 0.95 mg/l as CN^- , using fathead minnows (*Pimephales promelas*) at 20 C (Doudoroff 1956).¹¹⁸ Alkaline conditions reduced toxicity of a nickel cyanide complex considerably, with concentrations below 100 mg/l showing no apparent toxic effect on fish.

Nickel salts can substantially inhibit the biochemical oxidation of sewage (Malaney et al. 1959).²²³ In fresh waters, nickel has been reported to be less toxic to fish and river crabs than zinc, copper, and iron (Podulsky and Stedronsky 1948).²¹⁸ However, other investigators found nickel to be more toxic to fish than iron and manganese (Doudoroff and Katz 1953).¹¹⁹

Ellis (1937)¹¹⁴ reported that nickelous chloride from electroplating wastes did not kill goldfish (*Carassius auratus*) at 10 mg/l during a 200-hour exposure in very soft water. Wood (1964)²⁰⁴ reported that 12 mg/l of nickel ion kill fish in 1 day and 0.8 mg/l kill fish in 10 days. Doudoroff and Katz (1953)¹¹⁸ reported survival of stickleback (*Gasterosteus aculeatus*) for 1 week in 1 mg/l of nickel as $Ni(NO_3)_2$.

The lethal limit of nickel to sticklebacks has been reported as 0.8 mg/l (Murdock 1953)²²⁴ and 1.0 mg/l (Jones 1939).¹⁹³ The median lethal concentration of nickel chloride ($NiCl_2 \cdot 6H_2O$) was reported as 4.8 mg/l for guppies (*Breilia reticulata*) (Shaw and Lowrance 1956).²⁴² Goldfish (*Carassius auratus*) were killed by nickel chloride at 4.5 mg/l as nickel in 200 hours (Rudolf et al. 1953).²¹⁴ Tarzwell and Henderson (1960)²²⁵ reported 96-hour LC50's for fathead minnows (*Pimephales promelas*) as 4.0 mg/l in soft water and 24 mg/l in hard water, expressed as $NiCl_2 \cdot 6H_2O$. Anderson (1949)¹¹⁵ reported a threshold concentration of nickel chloride for immobilization of *Daphnia* in Lake Erie water at 25 C to be less than 0.7 mg/l in 64 hours of exposure. Bringmann and Kuhn (1959a,¹³³ 1959b)¹³² reported nickel chloride threshold concentrations as nickel of 1.5 mg/l for *Scenedesmus*, 0.1 mg/l for *Escherichia coli*, and 0.05 mg/l for *Alicoregma*.

3310

Nickel is present in sea water at 5 to 7 $\mu\text{g/l}$, in marine plants at up to 3 mg/l , and in marine animals at about 0.4 mg/l .

Marine toxicity data for nickel are limited. The top minnow *Fundulus* was found to survive in concentrations of 100 mg/l Nickel from the chloride in salt water, although the same species was killed by 8.1 mg/l of the salt (3.7 mg/l Ni) in tap water (Thomas cited by Doudoroff and Katz 1953).¹²⁸ Long-term studies on oysters (Haydu unpublished data)¹²⁹ showed substantial mortality at a nickel concentration of 0.12 mg/l . Calabrese et al. (unpublished data)¹³⁰ found 1.54 mg/l of nickel to be the LC50 for eggs of the oyster (*Crassostrea virginica*).

Recommendation

It is recommended that an application factor of 0.02 be applied to 96-hour LC50 data on the most sensitive marine species to be protected. Although limited data are available on the marine environment, it is suggested that concentrations of nickel in excess of 0.1 mg/l would pose a hazard to marine organisms, and 0.002 mg/l should pose minimal risk.

Silver

Silver is one of the more commercially important metals; 4,938 tons were consumed in the U.S. during 1968, excluding that used for monetary purposes (U.S. Department of the Interior, Bureau of Mines 1969).¹³¹ It is the best known conductor of heat and electricity. Although not oxidized by air, silver is readily affected by hydrogen sulfide to form the black silver sulfide.

Silver has many uses. In addition to making currency, it is used for photographic purposes, for various chemical purposes, and also in jewelry making and in silverplating of cutlery.

Silver is toxic to aquatic animals. Concentrations of 400 $\mu\text{g/l}$ killed 90 per cent of test barnacles (*Nalaeus balanoides*) in 48 hours (Clarke 1917).¹²⁸ Concentrations of silver nitrate from 10 to 100 $\mu\text{g/l}$ caused abnormal or inhibited development of eggs of *Paracentrotus* and concentrations of 2 $\mu\text{g/l}$ of silver nitrate delayed development and caused deformation of the resulting plutei (Soyer 1963).²⁴⁴ Adverse effects occurred at concentrations below 0.25 $\mu\text{g/l}$ of silver nitrate, and several days were required to eliminate adverse effects by placing organisms in clean water (Soyer 1963).²⁴⁵ Silver nitrate effects on development of *Athacia* have been reported at approximately 0.5 $\mu\text{g/l}$ (Soyer 1963,²⁴⁶ Wilker 1969²⁴⁷). In combination with silver, copper acts additively on the development of *Paracentrotus* eggs (Soyer 1963).²⁴⁸ On a comparative basis on studies on Echinoderin eggs (Soyer 1963),²⁴⁹ silver has been found to be about 80 times as toxic as zinc, 20 times as toxic as copper, and 10 times as toxic as mercury.

Calabrese et al. (unpublished manuscript)²⁵⁰ noted an LC50 of 0.006 mg/l silver for eggs of the American oyster (*Crassostrea virginica*). Jones (1948)²⁵¹ reported that the lethal concentration limit of silver, applied as silver nitrate, for sticklebacks (*Gasterosteus aculeatus*) at 15 to 18 C was 0.003 mg/l, which was confirmed approximately by Anderson (1948),¹³² who found 0.0048 mg/l to be the toxic threshold for sticklebacks. Jackim et al. (1970)¹³⁰ reported adverse effects on the liver enzymes of the killifish *Fundulus heteroclitus* at 0.04 mg/l of silver.

The sublethal responses to silver compounds may be great, in view of the effects on developing eggs; and further research should be conducted on effects of sublethal concentrations of silver compounds by themselves and in combination with other chemicals. The disruption of normal embryology or of nutrition could be of much greater importance than direct mortality in the perpetuation of the species.

Concentrations of silver cannot exceed that permitted by the low solubility product of silver chloride. However, silver complexes may be present, and their effects are unknown.

Recommendation

It is recommended that the concentrations of silver in marine waters not exceed 0.05 of the 96-hour LC50 for the appropriate species most sensitive to silver. On the basis of data available at this time, it is suggested that concentrations of silver equal to or exceeding 5 $\mu\text{g/l}$ constitute a hazard to the marine environment, and levels less than 1 $\mu\text{g/l}$ present minimal risk of deleterious effects.

Vanadium

Vanadium occurs in various minerals, such as chileite and vanadinite. It is used in the manufacture of vanadium steel. Vanadates were used at one time to a small extent for medicinal purposes. Vanadium has been concentrated by certain marine organisms during the formation of oil-bearing strata in geological time. Consequently, vanadium enters the atmosphere through the combustion of fossil fuels, particularly oil. In addition, eighteen compounds of vanadium are used widely in commercial processes (Council on Environmental Quality 1971).¹⁴⁴

Recommendation

It is recommended that the concentration of vanadium in sea water not exceed 0.05 of the 96-hour LC50 for the most sensitive species.

Zinc

Most of the available information on zinc toxicity is for freshwater organisms, and for this reason the reader is referred to the discussion of zinc in Section III, p. 182.

The acute lethal toxicity of zinc is greatly affected by water hardness (see Figure III-7). Pickering and Henderson (1966)⁴²⁶ determined the 96-hour LC50 of zinc for fathead minnows (*Pimephales promelas*) and bluegills (*Lepomis macrochirus*) using static test conditions. For fathead minnows in soft water (20 mg/l as CaCO_3) the LC50 was 0.87 mg/l, and in hard water (360 mg/l as CaCO_3) it was 33 mg/l. Bluegills were more resistant in both waters. Similarly the lethal threshold concentration was 3 or 4 times as high for coarse fish as for trout (*Salvelinus fontinalis*) (Ball 1967).²²⁸

The 24-hour LC50 of zinc for rainbow trout (*Salmo gairdneri*) was reduced only 20 per cent when the fish were forced to swim at 85 per cent of their maximum sustained swimming speed (Herbert and Shurben 1964).⁴²⁷ The maximum effect of a reduction in dissolved oxygen from 6 to 2 mg/l on the acute toxicity of zinc was a 50 per cent increase (Lloyd 1961,⁴²⁸ Cairns and Seliczer 1958,⁴²⁹ Pickering 1968).⁴³⁰ The effects are small in comparison to the difference between acutely toxic and safe concentrations. The recommended application factor recognizes these effects.

A chronic test in hard water (200 mg/l as CaCO_3), involving fathead minnow reproduction, determined the safe concentration of zinc to be between 0.03 mg/l, which had no effect, and 0.18 mg/l, which caused 83 per cent reduction in fecundity (Brungs 1969).⁴⁰ Using the 96-hour LC50 of 2.2 mg/l, the ratio of the above no-effect concentration to the LC50 is 0.0034. Interpolation suggests that about 0.005 of the LC50 would cause 20 per cent reduction of fecundity, making the best estimate of a valid application factor close to 0.005.

3313

There was a reduction in reproduction of *Daphnia magna* at a zinc concentration of 0.10 mg/l using soft water (45 mg/l as CaCO_3) (Biesinger and Christensen unpublished data 1971).⁴¹ No effect was observed at 0.07 mg/l, which indicated that *Daphnia magna* was more resistant to zinc than the fathead minnow.

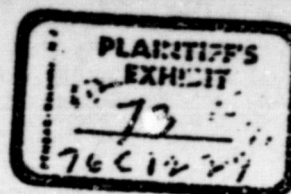
Avoidance reactions by rainbow trout in the laboratory have been caused by 0.01 of the LC50 of zinc (Sprague 1968a).⁴²

Recommendation

Because of the bioaccumulation of zinc through the food web, with high concentrations occurring particularly in the invertebrates, it is recommended that an application factor of 0.01 be applied to marine 96-hour LC50 data for the appropriate organisms most sensitive to zinc. On the basis of data available at this time, it is suggested that concentrations of zinc equal to or exceeding 0.1 mg/l constitute a hazard in the marine environment, and levels less than 0.02 mg/l present minimal risk of deleterious effects.

It should be noted that there is a synergistic effect when zinc is present with other heavy metals, e.g., Cu and Cd, in which case the application factor may have to be lowered by an order of magnitude (LaRoche 1972).⁴³

3314



Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.

A. My name is George L. Donkin. I hold the position Senior Economist, with J.W. Wilson & Associates, Inc. The firm's offices are at 2600 Virginia Avenue, N.W., Washington, D.C.

Q. WHAT IS THE BUSINESS OF J.W. WILSON & ASSOCIATES, INC.?

A. J.W. Wilson & Associates, Inc., provides analytical and consulting services to various governmental agencies, publicly owned utilities, and private enterprise. These services primarily concern energy economics, utility regulation, economic research and antitrust analyses.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND.

A. I possess both a Bachelors and a Masters degree in economics from the University of Maryland. I have also completed all required course work, written and oral examinations in the Doctoral program at that same university and I am presently on a leave of absence pending the completion of my Ph.D. dissertation. My major fields of study at Maryland were economic theory, industrial organization and antitrust.

economics.

Q. WHAT HAS BEEN YOUR PROFESSIONAL EXPERIENCE IN RECENT YEARS?

A. While a graduate student at Maryland, I was awarded a research fellowship in the Bureau of Business and Economic Research. I held this position for one and one-half years. In 1971, I accepted a permanent position as an Industry Economist in the Federal Power Commission's Bureau of Natural Gas. My principal duties there were to work with Staff geologists and petroleum engineers in preparing evidence for litigated proceedings involving gas producer rates. Sixteen months later, I transferred to the FPC's Office of Economics, where I served for 17 months in the Division of Economic Studies. My primary responsibilities there were to assist the Division Chief in all phases of natural gas regulation involving both producer and pipeline matters. In 1974, I resigned from the FPC to become an independent economic consultant on energy matters. That work focused primarily on the petroleum industry, and for 12 months, a large portion of my analytical work was supported through Cornell University by a research grant from the National Science Foundation. In March of 1975, I accepted my current position with J.W. Wilson & Associates.

Q. HAVE YOU PREVIOUSLY PRESENTED EXPERT TESTIMONY BEFORE GOVERNMENTAL BODIES?

A. I have testified before the FPC on three occasions. In 1973, I presented testimony on behalf of the Commission Staff relating to the rate of development of offshore Louisiana oil and gas leases. I have also testified on this subject before several Congressional committees. These include the House Small Business Committee, the Senate Antitrust and Monopoly Subcommittee, the Senate Subcommittee on Administrative Practice and Procedure, and the House of Representatives' Ad Hoc Committee on Outer Continental Shelf.

Q. HAVE YOU AUTHORED ANY PROFESSIONAL PUBLICATIONS?

A. In April of 1974, I presented a paper at the British Columbia Energy Conference in Vancouver, Canada. This paper was titled "The Competitive Effects of Interdependent Actions Among Buyers and Sellers in the Natural Gas Producing Industry." The paper was subsequently published by the Senate Commerce Committee and will be published this year in a book of readings by the British Columbia Institute for Analysis of Economic Policy.

Q. HAVE YOU RECEIVED ANY PROFESSIONAL APPOINTMENTS BY GOVERNMENTAL AGENCIES SINCE YOU LEFT THE FPC?

A. Yes. Last year I was appointed by the Chairman of the Federal Power Commission to become a Technical Advisor to the Natural Gas Survey's Task Force on Prospective Exploration and Development and Additions to Reserves. In this

capacity, I am presently a vice-chairman of the subcommittee which will project additions to gas reserves resulting from various levels of exploration and development activity.

Q. DOES THIS PDOD STATE OR IMPLY, IN TERMS OF NATIONAL ENERGY POLICY, THE UNDERLYING OBJECTIVE OF THE DECISION TO LEASE 154 TRACTS IN THE MID-ATLANTIC?

A. ~~While this PDOD does not explicitly indicate the precise objective of the decision to lease in the Mid-Atlantic,~~
at page 2 and under the heading "Background for the Decision", the PDOD states the following:

Reliance on oil imports has grown to where imports now account for 50 percent of U.S. Consumption, versus only 20 percent in 1967.

Similarly, the PDOD also maintains that "Production from the proposed sale would replace a like amount of imports" and "...savings on the annual import bill for oil would be \$1.5 billion". Given statements such as these, it would appear that, as was the case in the Interior Department's Programmatic PDOD on the OCS Accelerated Leasing Program, the function of the Mid-Atlantic leasing PDOD was to present a policy response to the ^{asserted} ~~present~~ problem of insecure and expensive imported oil. p.3

comment on this
Q. WOULD YOU PLEASE ~~ASSESS THE~~ RELATIVE MERITS OR WISDOM OF HOLDING OCS SALE #40 THIS MONTH IN TERMS OF DEALING WITH

THIS PROBLEM?

A. If oil and/or natural gas are found in ^{commercial} ~~continental~~ quantities in the Mid-Atlantic and if we abstract from environmental considerations, then Mid-Atlantic leasing would result in an increase in our domestic production capacity. However, this fact in-and-of itself does not imply that OCS Sale #40 is the optimal policy response, much less a good second-best alternative, to dealing with the problem of energy shortage and high cost imports. Indeed, it may very likely be the case that leasing in the Mid-Atlantic will be accompanied by a decrease in near-term exploration and developmental activity elsewhere. To the extent that this occurs, Sale #40 will exacerbate the problem, rather than alleviate it, as those who support Atlantic leasing often assert. In my view, this possibility in conjunction with the wide range of far superior alternatives to OCS Sale #40, places the proposed sale well down ~~on~~ the ladder of top priority energy policy alternatives.

Q. WOULD YOU PLEASE EXPLAIN THE BASIS FOR THAT CONCLUSION?

A. I believe that the ^{Interior Department} ~~singular~~ ^{should have evaluated} ~~foremost~~ ^{as a} ~~positive~~ ^{alternative to the proposed action,} ~~action, in~~ ^{terms of a national energy policy would be to provide the} means to increasing the production of oil and gas from existing offshore leases in particular and acreage already leased elsewhere in general.

Between 1970 and the end of 1975, the Interior Department sold 1049 oil and gas leases in prolific producing waters off the coasts of Louisiana and Texas. An additional 87 leases were sold in the offshore areas of Mississippi, Alabama and Florida and in December of last year, 56 leases were sold in the Federal Offshore California area. Thus, the potential for enhanced production from existing OCS leases is perhaps greater now than ever before. And, more importantly, the overwhelming bulk of this acreage is in the Gulf of Mexico where operating and environmental conditions are now, after more than twenty years of exploration, development and production, well known.

3319

In December of 1975, there were 1,784 active OCS oil and gas leases covering 8,306,968 acres under the supervision of the U.S. Geological Survey. On that same

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1 date only 745 leases (about 42 percent) covering 3,117,529
2 acres (about 38 percent) were actually producing oil
3 or natural gas. The remaining 1,039 non-producing
4 leases were either in a producible, shut-in status;
5 administratively consolidated with other leases in a
6 producing unit; or still in their primary term of five
7 years.

8
9 Q. WHAT IS A PRODUCIBLE, SHUT-IN LEASE?

10
11 A. The classification "producible, shut-in" is assigned by
12 the U.S.G.S to leases upon which at least one well has
13 been drilled which is capable of producing in paying
14 quantities. The purpose of this classification is to
15 enable the lease, in the absence of actual production,
16 to be extended beyond its primary term of five years.
17 The Geological Survey's OCS Order No. 4 contains the
18 following provision:

- 19 (1) An OCS lease provides for extension
20 beyond its primary term for as long as
21 oil or gas may be produced from the
22 lease in paying quantities.
23 (2) An OCS lease may be maintained beyond
24 the primary term, in the absence
25 of actual production, when a suspension

of operations or production, or both,
has been approved.

and (3) The supervisor may approve a suspension
of production provided at least one
well has been drilled on the lease
and determined to be capable of being
produced in paying quantities.

Q. UNDER WHAT CIRCUMSTANCES WOULD A NON-PRODUCING LEASE BE
CONSOLIDATED WITH PRODUCING LEASES INTO A PRODUCING UNIT?

A. The Supervisor of the U.S.G.S. also has the authority
to consolidate two or more leases into producing units,
even though only one of the unitized leases is actually
producing oil or gas. When this occurs, all leases
under the unitization agreement are granted extensions,
beyond their primary terms.

Q. IF A LEASE IS NEITHER PRODUCING NOR PLACED IN A "PRODUCIBLE,
SHUT-IN" STATUS, DOES THIS MEAN THAT NO HYDROCARBONS
ARE LIKELY TO BE PRESENT?

A. No. All this means is that the lease is not yet producing.
So long as a lease is still in its primary term of 5
years, the lessee is not obligated to apply for the

1 "producing, shut-in" classification. With respect to
2 the current situation, many of the OCS leases acquired
3 by industry in recent years have not yet been subjected
4 to exploratory drilling.

5
6 Q. PLEASE SUMMARIZE THE DISTRIBUTION OF OCS LEASES BY
7 VARIOUS STATUS CATEGORIES?

8
9 A. Yes. Exhibit Number _____ is the U.S. Geological
10 Survey's July 1, 1975, lease status report. This report
11 indicates the status on that date of the active oil
12 and gas leases in the Gulf of Mexico. I used this
status report to identify the number of active OCS
leases in various categories.

1691
Q. WOULD YOU PLEASE STATE THE NUMBER AND PERCENTAGE OF
GULF OF MEXICO OCS LEASES WHICH WERE PRODUCING OIL OR
GAS ON JULY 1, 1975?

A. On that date, 545 leases were in a producing status.
This figure represented 32.2 percent of the total
number of active OCS leases in the Gulf of Mexico.

Q. WOULD YOU PLEASE STATE THE CORRESPONDING FIGURES FOR
LEASES IN THE "PRODUCIBLE, SHUT-IN" CATEGORY?

A. On July 1, 1975, there were 186 "producing, shut-in"

leases in the Gulf of Mexico. These leases represented 11 percent of all active leases off the coasts of Texas and Louisiana.

Q. HOW MANY AND WHAT PERCENTAGE OF ALL OCS GULF OF MEXICO LEASES WERE NOT PRODUCING YET CONSOLIDATED IN PRODUCING UNITS?

A. There were 46 leases in this category. These 46 leases accounted for 2.7 percent of all active OCS leases in the Gulf.

Q. YOU JUST DESCRIBED THE STATUS ON JULY 1, 1975, OF 777 OCS LEASES. WERE THE REMAINING 914 NON-PRODUCING LEASES STILL IN THEIR PRIMARY TERM?

54.0%
A. Nearly all of the 914 leases not classified as producing, "producible, shut-in," or placed in a producing units were still in their primary term. There were a handful of isolated instances where a lease in its secondary terms was classified as either non-producing or off production.

Q. YOU STATED THAT ON JULY 1, 1975, THERE WERE 186 "PRODUCIBLE, SHUT-IN" LEASES IN THE GULF OF MEXICO. WOULD YOU PLEASE INDICATE THE RELATIVE MAGNITUDE OF THE RESERVES THAT COULD BE EXPECTED TO BE ASSOCIATED WITH THOSE LEASES?

A. Yes. One means of assessing the relative magnitude of the reserves likely to be associated with these 186 "produccible, shut-in" leases is to refer to a recent investigation conducted by the Federal Power Commission's Bureau of Natural Gas. In July of 1974, BNG issued a Staff Report which contained estimates of the recoverable gas reserves underlying 168 oil and gas leases in the Gulf of Mexico. Each of these 168 leases had been classified by the U.S.G.S. as producible, shut-in as of January 22, 1974. The BNG Staff estimates only pertained to gas reserves and were broken down into two categories--proved gas reserves and probable gas reserves.

Q. IS IT POSSIBLE TO INFER FROM THE BNG RESERVES ESTIMATES THE RELATIVE MAGNITUDE OF GAS RESERVES UNDERLYING THE 186 PRODUCIBLE, SHUT-IN LEASES ON JULY 1, 1975.

A. Yes. Many of the 168 leases for which BNG made reserves estimates in 1974 continued to remain in a producible, shut-in status one year later. In addition,

while some of the leases in the BNG Staff Report subsequently were put onto production, those leases were replaced by new leases not previously classified as producible, shut-in.

3325

Q. DID THE BNG STAFF REPORT INDICATE THAT SUBSTANTIAL GAS RESERVES WERE LOCATED AT THESE 168 LEASES?

A. Yes. The Bureau of Natural Gas estimated that 4.72Tcf of proved gas reserves plus an additional 3.27 Tcf of probable gas reserves were associated with these leases, for a total proved plus probable reserves estimate of 7.99 Tcf.

Q. DID THE BNG STAFF REPORT STATE EXPLICITLY THE DISTINCTION BETWEEN THEIR PROVED AND PROBABLE RESERVES ESTIMATES?

A. Yes. For purposes of their report, the only difference between a proved reservoir and a probable reservoir was that the economic producibility of the former be supported by either actual production or conclusive formation tests, whereas the latter be supported by core analyses and electric log evaluations to indicate the probability of the presence of hydrocarbons. In both instances, the reservoirs for which reserves estimates were made were required to have been delineated by

~~actual~~ drilling. Thus, the major distinction between the two types of reserves is that the proved category reflects reserves to be recovered "with reasonable certainty" whereas the probable reserves are those estimated to be recoverable "with reasonable probability."

- Q. WOULD YOU PLEASE PLACE INTO PERSPECTIVE THIS TOTAL PROVED AND PROBABLE GAS RESERVES ESTIMATE OF 7.99 Tcf.
- A. Yes. The Interior Department's Program Decision Option Document for the Mid-Atlantic OCS Sale #40 contains undiscovered recoverable resource estimates for the 154 tracts included in that proposed sale area. According to this PDOD, the U.S. Geological Survey has estimated that the undiscovered reserves underlying the Mid-Atlantic proposed sale area range between 2.6 and 9.4 trillion cubic feet of gas.

Q. HOW DOES THAT RANGE COMPARE AGAINST THE RESERVES
ESTIMATES FOR THE 168 PRODUCIBLE, SHUT-IN LEASES?

3327

A. An extremely conservative range of recoverable gas reserves for those 168 leases would be between 4.72 Tcf and 7.99 Tcf. The lower figure relates to BNG's proved reserves estimate while the 7.99 Tcf reflects BNG's estimate of both proved and probable reserves.

Q. YOU INDICATED THAT THIS IS AN EXTREMELY CONSERVATIVE RANGE OF ESTIMATED RECOVERABLE RESERVES FOR THOSE PROPERTIES. WOULD YOU PLEASE EXPLAIN WHY THIS IS SO?

A. Many of the leases contained in the BNG Staff Report had not yet been fully developed at the time the reserves estimates were made. In the Gulf of Mexico, field developmental drilling takes place from what ultimately becomes a production platform. Since this has become an extremely expensive operation, the number of productive developmental wells nearly always exceeds the number of exploratory wells drilled initially at a given lease, many of which are actually plugged and abandoned. Thus, if reserves estimates are restricted solely to reservoirs actually defined by drilling—as was the case in the BNG Staff Report—then those leases upon which further developmental drilling will take place are likely to contain significantly greater quantities of recoverable gas reserves than that represented by the range of 4.72 Tcf to 7.99 Tcf.

Q. THE LOW END OF THIS RANGE IS 4.72 Tcf. DO YOU BELIEVE THAT THIS FIGURE REPRESENTS A REASONABLE LOWER LIMIT FOR THE ACTUAL QUANTITY OF RECOVERABLE GAS RESERVES UNDERLYING THESE 168 LEASES?

A. No, I do not. That would be reasonable only if it is assumed that none of the 3.27 Tcf of estimated probable reserves are to be recovered. This, however, would not be a reasonable assumption.

Q. SIMILARLY, WITH RESPECT TO THE UPPER LIMIT OF THIS RANGE, WHAT ASSUMPTION WOULD BE NECESSARY TO LIMIT AN OPTIMISTIC GAS RESERVES ESTIMATE FOR THESE PROPERTIES TO 7.99 Tcf?

A. To optimistically limit the estimated recoverable reserves at these leases to 7.99 Tcf, one would have to assume that the only commercially productive reservoirs underlying all of these 168 leases are those associated with the drilling efforts upon which the BNG estimates are based. This would require adopting the extremely pessimistic assumption that no further developmental drilling on these leases will be undertaken or that all future drilling efforts will be totally successful.

Q. MR. DONKIN, WHAT WOULD BE A REASONABLE RANGE OF RESERVES ESTIMATES FOR THE 186 LEASES THAT WERE CLASSIFIED PRODUCIBLE, SHUT-IN ON JULY 1, 1976?

A. Given the fact that (1) a large number of the 168 leases for which BNG estimated the recoverable gas reserves are included in the 186 producible, shut-in leases and (2) the total number of producible, shut-in leases increased from 168 to 186 since the BNG reserves estimates were prepared, a reasonable range of estimated recoverable gas reserves for these properties would be between 6.4 Tcf and 10 Tcf. The 6.4 Tcf figure assumes that these leases contain at least 4.7 Tcf of proved gas reserves and that only about 50 percent of BNG's probable reserves estimate of 3.3 Tcf will ultimately be recovered. The 10 Tcf figure assumes that all of the proved and probable reserves of 7.99 Tcf are recoverable and that, as these leases are developed and placed onto production, their ultimate reserves increase by about 20 percent.

Q. HOW DO THESE RESERVES ESTIMATES COMPARE TO THOSE CONTAINED IN THE INTERIOR DEPARTMENT'S PDOD FOR OCS SALE #40?

A. At the lower end of the range, the 186 producible, shut-in leases are likely to produce about 245 percent more gas than the Mid-Atlantic leases proposed for sale \$40.. At the upper limit of the range, the reserves estimates for each group of leases are approximately the same.

Q. MR. DONKIN, ARE YOU AWARE OF ANY RESERVES ESTIMATES FOR THE QUANTITIES OF RECOVERABLE CRUDE OIL OR PETROLEUM LIQUIDS UNDERLYING THE 186 PRODUCIBLE, SHUT-IN LEASES IN THE GULF OF MEXICO?

A. No, I am not. However, inasmuch as the BNG reserves estimates included approximately 478 Bcf of associated or solution gas, it is obvious that recoverable petroleum liquids will also be produced from these 186 leases. Moreover, non-associated gas fields in the Gulf of Mexico typically produce significant quantities of gas-condensate and natural gas liquids. Therefore, it should not be assumed that the potential energy supplies associated with these leases are limited solely to natural gas.

Q. MR. DONKIN, IS THERE ADDITIONAL EVIDENCE TO SUGGEST THAT PRODUCTION FROM EXISTING OFFSHORE LEASES IN THE GULF OF MEXICO COULD BE SIGNIFICANTLY ENHANCED?

A. Yes. In February of 1975, the Federal Power Commission's Bureau of Natural Gas issued another Staff Report. The title of this report was Preliminary Investigation - Non-Producing Gas Reserves in the Gulf of Mexico as Reported in Federal Power Commission Form 15. This report showed that, as of December 31, 1973, there were approximately 7.9 Tcf of offshore gas reserves in non-producing reservoirs which were dedicated for sale to interstate pipelines. The BNG Staff Report also showed that between 1969 and 1973, the year end non-producing, dedicated gas reserves ranged between a low of 7.2 Tcf in 1971 and a high of 10.4 Tcf in 1969.

Q. WERE MOST OF THESE RESERVES LOCATED ON LEASES WHICH WERE CLASSIFIED PRODUCIBLE, SHUT-IN?

A. No, they were not. The large majority of these non-producing reserves were located on producing leases. To illustrate, 5.4 Tcf of the 7.9 Tcf were designated as "behind-the-pipe" reserves.

Q. WHAT ARE BEHIND-THE-PIPE RESERVES?

A. The Staff Report defined behind-the-pipe reserves as reserves which will be produced in the future by:

3332

- (a) normal plug-back and recompletion techniques;
- (b) mechanically opening up of previously perforated zones; and
- (c) anticipated drilling of additional wells to accelerate production of additional volumes prior to depletion of other producing zones in the well bore.

Thus, it is virtually always the case that behind-the-pipe reserves are located at leases which are currently producing.

Q. DID THE FPC STAFF SUBSEQUENTLY STUDY THE EXTENT TO WHICH PRODUCTION FROM THESE NON-PRODUCING OFFSHORE RESERVES COULD BE ACCELERATED?

A. Yes. In FPC Docket No. RI 75-112, the FPC staff performed an economic analysis of the extent to which the drilling of new wells into these non-producing reservoirs in order to increase OCS gas production would be economic. The Staff study pertained to a sample of the reservoirs listed in the February 1975 Staff Report. The total reserves involved in this study were approximately 1.2 Tcf of non-associated gas.

Q. WHAT WERE THE RESULTS OF THIS STAFF STUDY?

A. The PE Staff study revealed that, using a 15 percent discount factor, 82.1 percent of the 1.2 Tcf of non-producing reservoirs could be economically brought onto production through the drilling of additional wells at prices ranging between 55¢ and \$1.00 per Mcf.

Q. WHAT WOULD THOSE PRICES EQUATE TO IN TERMS OF OIL EQUIVALENTS?

A. In terms of equivalent energy, a gas price of 55¢/Mcf would approximate \$3.40 per barrel of oil, while Gas priced at \$1 would be roughly equivalent to \$6.20 oil.

Q. *How do these prices compare*
~~DO THOSE PRICES APPROXIMATELY EQUATE TO THE REAL RESOURCE~~
Programmatic
COSTS REFERRED TO IN THE PDOD?

A. ~~No, they do not.~~ Inasmuch as these prices allow for royalty and tax payments plus a return on investment, the real resource costs associated with the drilling of additional wells to accelerate production would be substantially below the prices required to elicit that drilling activity. *As in the programmatic PDOD, the real resource costs of frontier OCS production are estimated at between \$1 and \$7/barrel, exclusive of bonuses, royalties, and taxes and return on investment. Thus, the option of completing new wells in non-producing reservoirs to enhance OCS production appears quite attractive.*

RELATING TO FRONTIER AREA LEASING

gas
Q. YOU HAVE BEEN DISCUSSING THE FACT THAT ^A PRODUCTION IN THE GULF OF MEXICO COULD BE SIGNIFICANTLY ENHANCED BY PLACING ONTO PRODUCTION EITHER PRODUCIBLE, SHUT-IN LEASES OR NON-PRODUCING RESERVOIRS IN PRODUCING FIELDS. COULD OCS *oil and* PRODUCTION FROM CURRENTLY PRODUCING RESERVOIRS ALSO BE ENHANCED?

gas
A. Certain available evidence ~~seems to~~ suggest that a large number of producing reservoirs in the Gulf are in fact not being produced at their maximum potential.

Q. WOULD YOU PLEASE EXPLAIN?

A. Each quarter, the U.S.G.S. Oil and Gas Supervisor publishes a listing which designates the approved Maximum Efficient Daily Producing Rates for producing reservoirs and the maximum daily production rates for all producing well completions in the Gulf of Mexico.

Q. IS THIS MAXIMUM EFFICIENT RATE FOR RESERVOIRS OFTEN CALLED THE MER?

A. That is correct.

3335

Q. WOULD YOU PLEASE DEFINE THE TERM MER?

A. The Geological Survey's OCS Order 11 defines MER as the:

Maximum sustainable daily oil or gas withdrawal rate from a reservoir which will permit economic development and depletion of that reservoir without detriment to ultimate recovery,

Q. WOULD YOU ALSO DEFINE THE TERM MPR?

A. The U.S.G.S. has defined the term MPR as:

The approved maximum daily rate at which oil may be produced from a specified oil well completion...

Q. WHAT ARE THE MAJOR DISTINCTIONS BETWEEN THE MER AND THE MPR?

A. As I previously indicated, the MER relates to a given reservoir whereas the MPR is assigned to each well completion in that reservoir. In addition, in most instances, the MER is estimated and submitted to the U.S.G.S. by the operator of each producing lease, whereas the MPR is derived by actual test data on a well-by-well basis.

Q. HOW OFTEN IS THE MPR FOR EACH WELL COMPLETION DETERMINED?

A. Currently, OCS Order No. 11 requires that oil wells be

tested and MPR's be revised quarterly whereas the testing of gas wells for purposes of establishing MPR's is done on a semi-annual basis.

- Q. IF THE MER RELATES TO A MAXIMUM EFFICIENT PRODUCTION RATE FOR A RESERVIOR AND THE MPR PERTAINS TO THE MAXIMUM PRODUCTION RATE FOR WELL COMPLETIONS, DOES IT FOLLOW THAT THE SUM OF THE MPR FOR EACH WELL IN A GIVEN RESERVOIR WILL EQUAL THE MER FOR THAT SAME RESERVOIR?

- A. This is theoretically possible, but for several reasons, the sum of individual MPR's should seldom, if indeed ever, equal the MER for a given reservoir.

- Q. WOULD YOU PLEASE STATE THE REASONS WHY THIS IS SO?

- A. In past discussions with Geological Survey and FPC engineers and geologists, I have been told that the MPR assigned to well completions reflects 110 percent of the producing rate at which the well tested. In other words, if an oil completion tested at 500 barrels a day, it would be assigned an MPR of 550 barrels per day. Thus, assuming that the MER for the reservoir is accurate, the sum of the MPR's for that reservoir could yield a figure which is approximately 10 percent greater than the reservoir MER.

- Q. THAT WOULD BE A RELATIVELY MINOR DIFFERENCE. ARE THERE OTHER CONSIDERATIONS WHICH MIGHT LEAD TO A LARGE DIVERGENCE AND THE MER FOR A RESERVOIR OR FIELD?

3337

A. Many offshore reservoirs are sufficiently productive to warrant production from two or more well completions.

If however, a given reservoir has an MER of 20,000 Mcf/day but only one well which was tested at a daily rate of 5,000 Mcf, then the reservoir MER will greatly exceed the sum of the MPR's for that same reservoir. Only by the drilling of additional wells would the operator be able to increase the MPR's up to the level of the theoretical MER.

Q. HAVE YOU ATTEMPTED TO DETERMINE WHETHER OR NOT THE TOTAL MPR'S FOR ALL OCS LEASES CLOSELY APPROXIMATES THE TOTAL MER'S FOR THOSE PROPERTIES?

A. Yes. I have examined the OCS MER and MPR reports for the first two quarters of this year. On January 1, the MPR's for the 3029 oil completions in the Gulf accounted for 73.3% of the total MER of 1,302,040 barrels per day. The 1844 gas well completions had MPR's that quarter of 76.5 percent of the total MER of about 12.2 Bcf per day. The corresponding percentages for the second quarter were 71.7% for oil and 81.2% for natural gas.

Q. WHAT WAS THE ABSOLUTE MAGNITUDE OF THE MER-MPR GAP FOR THESE QUARTERS?

A. In the first quarter, the MER for all Gulf of Mexico oil reservoir exceeded the total MPR for those reservoirs

by 347.3 thousand barrels per day. This figure increased to 381.9 thousand barrels per day on April 1 of this year. The comparable figures for natural gas reservoirs were 2.8 billion cubic feet during the first quarter and 2.5 Bcf in the second quarter of this year.

Q. CAN THE MPR BE USED TO APPROXIMATE ACTUAL PRODUCTION IN THE GULF OF MEXICO?

A. Since MPR's relate to producing completions, they could be used to closely approximate actual production if operators were producing all wells at or near their respective MPR. However, this is not the case.

Q. WHY IS THIS SO?

A. One reason is, as I explained earlier, the MPR is set at 110 percent of the individual well's test rate. Thus, unless operators produce at levels in excess of MPR for a sustained period of time, actual production levels should on the average be slightly less than MPR. Another reason is that comparisons of actual production against MPR's indicate that oil and natural gas wells are being produced at levels significantly below what could be predicted from their respective MPR's.

Q. WOULD YOU PLEASE ELABORATE ON THIS LATTER POINT.

[REDACTED] 4339

A. On September 23, 1975, the Chief Economist of the Senate Antitrust and Monopoly Subcommittee, Dr. Walter Measday, presented to that Subcommittee the results of his Staff's preliminary investigation of the competitive aspects of OCS oil production. Dr. Measday's staff studied 330 leases in 79 oil fields in the offshore Louisiana area. These 330 leases accounted for 86 percent of the total crude production on federal OCS leases in the Gulf of Mexico in 1974. According to Dr. Measday's testimony, this study showed the following:

- (a) During the first 6 months of 1975, crude oil production from these leases averaged 74.8 percent of MPR; and
- (b) During that same period, crude oil production averaged just under 50 percent of MER.

Q. HAVE YOU ATTEMPTED TO DETERMINE THE EXTENT TO WHICH ACTUAL NATURAL GAS PRODUCTION DEVIATES FROM EITHER MER OR MPR?

A. Yes, I have. I compared first quarter 1976 MER's and MPR's for 49 gas fields in the OCS against actual March, 1976 gas production. The results of this study appear in Exhibit No. _____.

Q. WHY DID YOU LIMIT YOUR STUDY TO MARCH, 1976 PRODUCTION?

A. This was the only month for which the Interior Department provided production data on a field basis.

Q. HOW WERE THE 49 FIELDS IN YOUR STUDY SELECTED?

A. All of these fields are in the Western to Central portion of the Louisiana OCS area. While there are several significant oil fields in this area, the West Cameron to Ship Shoal region is generally considered to be a non-associated gas province. To illustrate, while this area accounted for 81.2 percent of the total first quarter natural gas MPR in the Gulf, it only represented 38.8 percent of the total crude oil MPR. Within this area, I then analyzed all fields which are predominantly non-associated gas fields and possess a field MPR of 20,000 Mcf per day or more.

Q. WHAT PERCENTAGE OF THE TOTAL FIRST QUATER MPR FOR THESE AREAS DO THE FIELDS LISTED IN EXHIBIT NO. _____ REPRESENT?

A. The fields in my sample account for 85.9 percent of the total natural gas MPR for the West Cameron through Ship Shoal producing areas.

Q. WOULD YOU PLEASE SUMMARIZE THE RESULTS OF YOUR ANALYSIS?

A. Exhibit No. ____ indicates that in March of 1976, these 49 gas fields produced at 77.2 percent of MPR and at only 58.6 of total field MER. If they had produced at 90 percent of MPR, production would have been about 830,000 Mcf/day greater. Moreover, were these fields developed ..

to the level indicated by their respective MER's, ~~then~~ 3341
production could have been increased by approximately
3.5 Bcf/day. However, it is virtually certain that these
figures understate the actual extent to which these fields
failed to produce at near capacity levels.

Q. WHY IS THAT?

A. While the MPR's and MER's used in my analysis pertain solely
to non-associated gas reservoirs, the gas production figures
against which I compared MPR's and MER reflect not only
non-associated gas production but gas production with oil
as well. MPR's and MER's are not established for associated
gas, because that production is determined by the rate at
which the oil is produced. Thus, to the extent that signifi-
cant quantities of associated gas production are included
in the field production figures, the ratio of non-associated
gas production to MPR or MER is overstated.

Q. WOULD YOU PLEASE GIVE SOME EXAMPLES OF THIS TYPE OF
SITUATION.

A. Yes. Please refer to Exhibit No. ____, line No. 48.
This entry indicates that the Ship Shoal Block 222 field
produced at 90.6 percent of MPR and 52.9 percent of MER
in March. Inasmuch as the 1st quarter lists 21 oil com-
pletions and 55 gas completions for this field, it is

highly probable that some associated gas was also produced that month. Similarly, the East Cameron Block 271 field, which is shown at Line No. 18 of my Exhibit, had 40 oil completions listed for the 1st quarter. Therefore, it is extremely likely that non-associated gas production in March as a percent of MPR and MER was even less than the relatively low figures of 63 percent and 48.2 percent shown in Exhibit No. ____.

Q. MR. DONKIN, ARE THERE POSSIBLY SOME LEGITIMATE REASONS WHY PRODUCTION MIGHT BE SIGNIFICANTLY BELOW THE DESIGNATED MPR OR MER?

A. Certainly, over a short period of time, a particular lease or field may produce below MPR if wells are down for mechanical or safety reasons. Also, as I mentioned earlier, the MPR is set at 110 percent of the test rate, therefore actual production over time should be expected to be slightly below MPR. However, pursuant to OCS Order 11, operators do have the right to make up postponed production due to down time by exceeding MPR over a stated period of time. Thus, down time should not be a valid explanation for fields which consistently produce well below their established MPR's. In connection with this point, I would like to refer once again to the Senate Antitrust and Monopoly Subcommittee's investigation, Dr. Measday

testified that U.S.G.S officials have reported that when production chronically lags below MPR, operators are encouraged to set MPR at 110 percent of the previous quarter's average daily production. He also testified that his staff found documents in the U.S.G.S files which expressed their concern over production shortfalls in the OCS and that at one point the U.S.G.S attempted to determine if the oil companies operating the OCS could be required to increase production above some minimum levels. This would indicate the U.S.G.S's valid concern over the MPR-production gap. But, if MPR's are arbitrarily adjusted to reflect actual production history, as opposed to flow-test data, this would seem a suboptimal solution to dealing with the problem. A far superior course of action would be to undertake an investigation as to why such shortfalls exist.

Q. IS THIS BECAUSE CERTAIN FIELDS, AS OPPOSED TO THE ENTIRE OCS AREA ON AVERAGE, MAY BE PRODUCING WELL BELOW MPR?

A. Yes. Of the 49 fields listed in Exhibit No. ___, 17 produced at between 16.2 percent and 68.7 percent of the total field MPR in March of this year. In other words while there may be reasonable explanations as to why production, in general, will be consistently below MPR, the magnitude of the gap with respect to certain fields is sufficiently large to warrant genuine cause for concern.

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However, in my view, a far more significant area of potential inquiry relates to the extremely large shortfall observed between either actual production or MPR and the maximum efficient rate for reservoirs.

Q. WHY IS THE MER VERSUS PRODUCTION OR MPR GAP SO IMPORTANT?

A. It is important because the gap seems to indicate that through additional developmental drilling, production from the OCS could be dramatically accelerated within only a short period of time. If it is assumed that the field MER's listed in Exhibit No. — reasonably reflect the maximum efficient rates at which those reservoirs can be produced, then it is clear that the drilling of additional wells in those fields would enable the producers to significantly increase production.

Q. IS IT POSSIBLE THAT THE ESTABLISHED MER'S FOR GAS FIELDS EITHER OVERSTATE OR UNDERSTATE THE TRUE MAXIMUM EFFICIENT RATE OF PRODUCTION IN THE GULF?

A. Inasmuch as, pursuant to OCS Order 11, reservoir MER's are now reviewed and revised annually, I am not aware of any basis to challenge the validity of the MER concept. As a footnote to this, I would like to add that it is the only publicly available index of production capability on a reservoir basis for producing fields in the OCS.

Q. HAS THERE BEEN AN INCREASING INTEREST IN THE GAP BETWEEN MER AND ACTUAL PRODUCTION IN RECENT YEARS?

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A. Yes. For example, in early 1975, during the course of an FPC investigation relating to increased curtailments of natural gas service by Transcontinental Gas Pipeline Corporation, it became known that gas production from the large Ship Shoal Block 208 field was averaging approximately one-third of the total field MER. The FPC Staff requested that representatives of the U.S.G.S. appear to explain why both production and MPR were approximately 400,000 Mcf per day less than the field MER. Since that time, increasing interest has developed over the production-MER shortfall. The investigation conducted by the staff of the Senate Antitrust and Monopoly Subcommittee is a prime example of this interest.

Q. BUT IF THE MER IS REQUESTED BY THE OPERATOR AND NOT ESTABLISHED INDEPENDENTLY BY THE U.S.G.S., IS IT POSSIBLE THAT THE PETROLEUM INDUSTRY COULD ARBITRARILY REMOVE ALL CAUSE FOR CONCERN BY REDUCING MER'S TO LEVELS WHICH APPROXIMATE EITHER MPR OR ACTUAL PRODUCTION?

A. This is a distinct possibility. For example, as I mentioned previously, in early 1975 the Ship Shoal Block 208 field became the subject of considerable inquiry at the FPC. To see why, consider the fact that the second quarter 1975

field MER was 658,200 Mcf per day as opposed to a field MPR of 264,300 Mcf per day. However, in the 4th quarter of 1975, the field MER was reduced to 294,025 Mcf per day while the MPR remained virtually constant at a daily rate of 263,190 Mcf. I have prepared Exhibit No. ____ to show how this was accomplished. This exhibit shows that for wells operated by the Kerr-McGee Corporation, the ratio of MPR to MER increased from 46.6 percent during the 2d quarter of last year to 105.9 percent in the 4th quarter. It also shows that in the 4th quarter, the reservoir MER's associated with all but two of Kerr-McGee's 17 wells in this field were set at exactly the sum of the individual well MPR's. In other words, the operator eliminated the MER-MPR problem, not by drilling additional wells but by reducing the MER for the field.

Q. ARE THERE OTHER EXAMPLES OF CHANGES IN THE MER WHICH RESULT IN CLOSING THE GAP BETWEEN THE MER AND THE MPR?

A. Yes. The Eugene Island Block 295 lease is operated by Exxon. Exhibit No. ____ presents a comparison of both the MER and MPR for this lease between April of 1975 and April of 1976. Once again, it seems rather clear that, in several instances, Exxon established reservoir MER's at or near the level of the individual well MPR's. As a result of these changes, the ratio of lease MPR to MER increased

from 67.8 percent in 1975 to 98.7 percent in 1976

8347

Q. I OBSERVE THAT WHILE THE DAILY MER FOR THIS LEASE DECLINED FROM 326,160 MCF TO 271,220 MCF, THE DAILY MPR ACTUALLY INCREASED FROM 221,220 MCF TO 271,220 MCF. IS THIS BECAUSE THE NUMBER OF WELL COMPLETIONS AT THIS LEASE INCREASED OVER THE TWELVE MONTH PERIOD?

A. The increase in well completions only explains why the MPR also increased. The decline in MER concomitant with an increase in well completions would seem difficult to justify.

Q. WHY IS THIS?

A. Please refer to Line Nos. 18-30 in the Exhibit. The wells listed there are completed in Exxon's E5 and E15 reservoirs. In April of last year, these reservoirs had a MER of only 241,000 Mcf per day, which was 93,500 Mcf a day greater than their combined MPR of 147,500 Mcf. One year later, four additional wells were completed in these reservoirs, increasing the daily productive capacity of the lease by 58,000 Mcf, yet surprisingly the MER fell to 208,300 Mcf. The only plausible explanation for this is that additional reservoir engineering information was acquired through the four new wells and that this information indicated that the MER should be reduced.

Q. EVEN IF THE ADDITIONAL INFORMATION ASSOCIATED WITH THE FOUR NEW WELLS GENERATED THE DECLINE IN THE MER FOR THESE TWO RESERVOIRS, WAS NOT THE DIRECT RESULT OF THE NEW WELLS BOTH AN INCREASE IN PRODUCTION CAPACITY AND A DECLINE IN THE MER-MPR GAP?

A. Yes, it was. This is precisely the point which I made earlier--that where MER is significantly greater than MPR, that gap can be reduced by drilling additional wells and thereby increasing the ability of the field or reservoir to produce hydrocarbons. Obviously, from a public interest viewpoint, reducing the MER-MPR shortfall through developmental drilling is preferred to producers simply reducing MER's to bring them more in line with field MPR's.

Q. MR. DONKIN, I SHOW YOU A DOCUMENT TITLED MER INCREMENTAL COST. THIS DOCUMENT WAS PREPARED BY THE INTERIOR DEPARTMENT AND ATTEMPTS TO ANSWER THE QUESTION: WHAT WOULD BE THE INCREMENTAL COST TO THE OIL INDUSTRY IN LATE SENSITIVE RESERVOIRS TO INCREASE TO AN APPROXIMATE MER LEVEL OF PRODUCTION FROM THE CURRENT LEVEL OF PRODUCTION? HAVE YOU ANALYZED THIS DOCUMENT?

A. Yes, I have.

Q. PLEASE STATE AND THEN ASSESS THE VALIDITY THEREOF THE CONCLUSIONS ARRIVED AT BY THE AUTHORS OF THIS DOCUMENT?

A. According to this study, in August of 1975, oil production averaged 619,686 barrels per day, which was 725,752 barrels per day under the total Gulf Coast OCS daily MER of 1,346,438 barrels. The study asserts that the incremental cost of increasing production to the August 1975 MER level over a one-year period is \$5 billion. This conclusion is both erroneous and wholly misleading in terms of the incremental cost that would be associated with significant reductions in the MET-production gap.

Q. WHY IS THIS CONCLUSION ERRONEOUS?

A. The authors, in their initial point of departure, made an arithmetical error which results in substantial overstatement of the estimated incremental costs of producing at or near MER. Specifically, the study states the following:

Even if wells can produce at MPR, the production will remain short of the MER level. This gap can be bridged only by drilling more wells. As of August 1975, an average well has an MPR of 242 barrels per day. If wells can be drilled instantly and wells can be produced at MPR without any shut-in period, the number of new wells required is 3,000.

This 3,000 well figure was derived by taking the August MER-Production difference and dividing that difference by the average MPR of 242 barrels per day. I have examined the USGS' quarterly MER and MPR listing, and this report reveals that while the MER figure of 1,346,438 is correct, the average oil MPR for that quarter was actually 418 barrels per day. Thus, the estimated number of new wells required to increase the total MPR to the MER level should be 1,736 --

3350
not the 3000 figure used in this study. In other words, the authors overstated the number of additional wells required by about 73 percent. Thus, if we accept their methodology, the estimated costs of reducing the MER-production gap are more in the neighborhood of \$2.8 billion as opposed to \$5 billion.

Q. WHY IS THE ANALYSIS CONTAINED IN THAT STUDY WHOLLY MISLEADING?

A. The problem that we are addressing here is the large divergence between production capability, as measured by the MER, and actual production and the associated costs of closing that gap through additional developmental drilling. The authors of this study assumed that drilling costs would be \$1,250,000 per well and multiplied this figure by the number of additional wells required. This methodology results in an unreasonably high estimate of the incremental costs of significantly reducing, but not eliminating entirely, the gap between MER and actual production. This is so because all reservoirs would simply not warrant accelerated production through additional drilling. To see this, consider the C-5RZ oil reservoir at the Eugene Island Block 238 field. In August of 1975, this reservoir had an MER of 60 barrels/day and an MPR of 20 barrels/day. It is extremely unlikely to assume that the operator of this reservoir would drill an additional well or wells into this reservoir simply to increase production by about 40 barrels/day. This would be

extremely imprudent, inasmuch as, assuming that incremental production averages 40 barrels on a daily basis and is sold at a price of \$12, the estimated expenditure incurred to generate approximately \$175 million in annual revenue would be in excess of \$1.6 billion.

Q. ARE THERE A NUMBER OF INSTANCES WHERE THE BENEFITS OF ACCELERATED PRODUCTION THROUGH DEVELOPMENTAL DRILLING WOULD APPEAR TO GREATLY EXCEED THE INCREMENTAL COSTS OF THAT ACTIVITY?

A. Yes. The BF2 RC 4 reservoir at the West Delta 30 field is a prime example of the potential gain that could be obtained were more wells drilled at reservoirs where production is significantly below MER. In August of last year, this reservoir had a daily MER of 2950 barrels and the single well completion in this reservoir had an MPR of 1,410 barrels per day. If one new well drilled into this reservoir and that well were about as productive as the existing well, then a production increase of about 1,400 barrels per day would be obtained at the same estimated cost of increasing production by 40 barrels per day at Eugene Island Block 238 field. The point that I am making is that economics will not warrant increasing production from all reservoirs up to the MER but there are a large number of reservoirs at which the potential benefits greatly exceed the incremental costs of accelerating production above existing levels.

Q. WHAT WOULD BE THE INCREMENTAL COSTS FOR THE ADDITIONAL BARREL OF DAILY PRODUCTION CAPACITY IN THE B72 RC4 RESERVOIR AT THE WEST DELTA 30 FIELD IF ONE NEW WELL WERE RATED INITIALLY AT 1400 BARREL/DAY?

90,000
A. At a cost of \$1.25 million per well, an additional MPR of 1400 barrels would yield an incremental daily productive capacity cost of \$892/barrel. This compares to comparable figures of between \$9.5 thousand and \$10.4 thousand per barrel of additional peak production from the proposed Mid-Atlantic leases. Obviously, comparisons such as this tend to distort the true potential benefits versus costs considerations pertinent to Sale #40, but they do illustrate the fact that, given the tremendous level of investment that will be required to explore for, develop, produce, transport and process whatever hydrocarbons, if any, are to be found in the Mid-Atlantic there are alternatives to Mid-Atlantic leasing which are available at substantially lower unit costs.

Q. WHAT WERE THE INCREMENTAL COSTS PER BARREL OF CLOSING THE MER-PRODUCTION GAP TO ZERO IN THE INTERIOR DEPARTMENT'S STUDY PERTAINING TO AUGUST 1975 PRODUCTION PERFORMANCE?

A. Using their erroneous total expenditure figure of \$5 billion, this would yield an incremental cost per barrel of additional daily production of \$6,880. If that total investment were

adjusted to reflect the error in the average MPR per well, this figure would decline to \$3,852 per barrel. However, as I discussed previously, both of these figures greatly overstate the costs, on a unit basis, of accelerating Gulf of Mexico OCS production by completing new wells in reservoirs where the MER is substantially in excess of production capability. To see this, I have prepared Exhibit Number _____.

Q. WOULD YOU PLEASE DESCRIBE EXHIBIT NUMBER _____?

A. Yes. This Exhibit presents what I believe are very conservative estimates of the acceleration in production capacity, measured in terms of additional MPR, that would obtain if new wells were completed in selected reservoirs in 4 producing areas of the Central Gulf of Mexico.

Q. HOW WERE THE RESERVOIRS LISTED IN THIS EXHIBIT SELECTED?

A. I established two criteria, both of which I required be met, for reservoirs to be eligible for a new well. The first requirement was that the difference between the reservoir MER and MPR be at least 250 barrels per day. I then required that all reservoirs meeting that test also have an average MPR per well of 250 barrels per day.

Q. IF A RESERVOIR MET THIS TEST, HOW WERE THE NUMBER OF ADDITIONAL WELLS AND MPR ESTIMATED?



A. I then assumed that the MER-MPR gap would be filled by wells with an MPR's reflective of the lesser of the average MPR per well of existing wells or the absolute level of the MER-MPR gap.

Q. WOULD YOU PLEASE COMPARE THE RESULTS SHOWN IN EXHIBIT NO. _____ WITH THE INTERIOR DEPARTMENT'S ESTIMATED INCREMENTAL COSTS OF CLOSING THE MER-PRODUCTION GAP?

A. The Interior Department study estimated that it would take 3000 new wells to generate an increase in the OCS MPR of 726,752 barrels per day. My Exhibit shows that only ~~257~~ 243 wells, which are 8.4 percent of their estimated well requirement, would reduce the MER-MPR gap by over 115,000 barrels per day, which is a 15.8 percent reduction. Stated another way, by recognizing differences in the potential production capability among reservoirs, OCS production could be increased at a much lower cost than that indicated in the Interior Department study.

Q. What are the estimated additional drilling costs associated with that 115,000 Barrels per day increase in MPR?

A. At an estimated cost per well of \$1.25 million, the

Q. YOU INDICATED EARLIER THAT THE ESTIMATES CONTAINED IN EXHIBIT NUMBER _____ ARE EXTREMELY CONSERVATIVE. WOULD YOU PLEASE EXPLAIN WHY THIS IS SO?

A. The conservative nature of those estimates derives from the requirements that I established regarding each reservoir's eligibility for new wells to increase production. Many

these 24 new wells would be about \$302 million. This would equal an increase in production capability of \$2 cost per barrel per day of new production.

reservoirs listed in my sample possess ^{two} ~~few~~ or more well completions. By assuming that all new wells in a given reservoir would be assigned an individual MPR equal to the average reservoir MPR per existing well, in all probability I biased these estimates downward. For example, consider a reservoir which has been on production for several years. If this reservoir has an MER of 2400 barrels/day and two wells whose respective MPR's are 600 and 200 barrels per day now but previously were rates at 800 and 260 barrels/day, my methodology would indicate that 4 new wells would be required to increase the reservoir MPR up to the current MER. However, it could very well be the case that as few as two new wells, each with an approved MPR of 800 barrels per day would be needed to reduce the MER-MPR gap to zero. Similarly, there were many instances where the MER-MPR gap was large and individual wells possessed daily MPR's well in excess of 250 barrels, yet the average MPR/Well for the entire reservoir was less than 250 barrels per day. In all of those cases, it is probably unreasonable to assume that no new well or wells would be able to attain MPR's of 250 barrels per day.

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- Q. YOU HAVE INDICATED THAT THROUGH AN EXTENSIVE EFFORT TO DEVELOP AND PRODUCE RESERVES ON (A) PRODUCIBLE, SHUT-IN LEASES AND (B) NON-PRODUCING RESERVOIRS, PRODUCTION IN THE GULF COULD BE SIGNIFICANTLY INCREASED. YOU HAVE ALSO TESTIFIED THAT IF NEW WELLS IN CURRENTLY PRODUCING OIL AND GAS RESERVOIRS WERE DRILLED, OR IF PRODUCTION FROM EXISTING PRODUCING WELLS WERE INCREASED UP TO LEVELS APPROXIMATING THEIR RESPECTIVE MPR'S, THAT WOULD INCREASE OCS PRODUCTION EVEN FURTHER. IF THIS WERE TO OCCUR, WOULD THE CONCOMITANT INCREASE IN OCS PRODUCTION BE AS LARGE AS THAT WHICH MIGHT DERIVE FROM OCS SALE #40 IN THE MID-ATLANTIC?
- A. Given that the known gas reserves at existing non-producing leases and/or reservoirs are now greater than the upper estimate of 9.4 Tcf of gas for the yet to be drilled tracts involved in Sale #40, OCS production of natural gas from these sources would be brought on significantly sooner and at much greater levels than that which can reasonably be anticipated from OCS Sale #40. Moreover, if offshore production of both oil and gas from currently producing reservoirs were increased through efforts to attain maximum efficient production rates, accelerated production from the OCS would greatly exceed that which--to the extent any oil or gas is found in the Mid-Atlantic--would derive from Sale #40.

Q. WHY WOULD THESE ALTERNATIVES TO SALE #40 RESULT IN ACCELERATED OCS PRODUCTION TAKING PLACE SOONER THAN WERE PETROLEUM AND NATURAL GAS TO BE FOUND IN COMMERCIAL QUANTITIES IN THE MID-ATLANTIC? 3357

A. The potential increase in OCS production from producible, and reservoirs presently on production shut-in leases, non-producing reservoirs/is associated with already discovered resources. To accelerate production from these sources, all that would be required, in most instances, is additional developmental drilling and the construction and installation of some new production facilities. This is not the case in the Mid-Atlantic, where exploration has not yet commenced. Lead-times there between lease acquisition and the attainment of significant production will be quite long. Moreover, as a mature producing province, the transportation facilities in the Gulf of Mexico are already in place. Offshore natural gas pipelines are currently connected to onshore gas processing plants, where natural gas liquids such as propane, butane and ethane are extracted.

Q. THE POTENTIAL FOR ACCELERATED AND RAPID PRODUCTION WHICH YOU JUST DESCRIBED WOULD DERIVE SOLELY FROM EITHER PRODUCIBLE, SHUT-IN LEASES OR FORM LEASES ALREADY ON PRODUCTION. WOULD EXPLORATION AND DEVELOPMENT OF THE 914 LEASES NOT CLASSIFIED ON JULY 1, 1975 AS PRODUCIBLE, SHUT-IN OR PRODUCING ALSO RESULT IN ENHANCED OCS PRODUCTION?

3358

- A. Yes, it would. As I stated earlier, most of these leases are still in their primary terms of 5 years. In 1974 and 1975, the Interior Department accepted 621 high bids on leases in the Gulf of Mexico and many of these 621 tracts have not yet been subjected to exploratory drilling.

While all of these non-producing leases will not ultimately prove productive, many of them will. The point which I would like to emphasize here is that the potential for enhanced OCS production from existing leases in the Gulf of Mexico is much greater than that associated with OCS Sale # 40. However, it does appear that this potential is not currently being exploited at the optimal level.

- Q. MR. DONKIN, AT PAGE 16 OF OCS SALE #40 PDOD, UNDER OPTION C: CANCELLATION OR INDEFINITE DELAY OF THE SALE, THE FOLLOWING APPEARS:

RESOURCES FOREGONE WOULD BE 0.4 TO 2.4 BILLION BARRELS OF OIL AND 2.6 TO 9.4 TRILLION CUBIC FEET OF GAS. OIL IMPORTS WOULD NOT BE REPLACED BY PRODUCTION.

DO YOU AGREE WITH THOSE STATEMENTS?

- A. If the proposed sale is either cancelled or delayed indefinitely and if hydrocarbons in place are commercially recoverable within those ranges, then the first statement is obviously accurate. However, for reasons which I have already discussed, it does not follow that in the near term oil imports will not be replaced by OCS production. In fact, it is quite possible that not

holding OCS Sale #40 will result in greater levels of ~~oil~~ 3359
domestic production between now and 1985 than would obtain
were the sale to be held as scheduled.

Q. WHY IS THIS SO?

A. The PDOD estimates that between \$400 and \$600 million in bonuses will be paid for the 154 tracts to be offered. In addition, exploratory and developmental drilling costs are estimated at between \$420 million and \$1.6 million. I do not believe that we should assume that investments of this magnitude will not be made at the expense of increased domestic exploratory and developmental drilling activity elsewhere -- either in the Gulf of Mexico or high potential onshore areas. Based upon the Interior Department's own figures, between 320 and 480 developmental wells could be drilled off the coasts of Texas and Louisiana for the costs of the lease bonuses which are being projected for sale #40. And, as recognized at page 1 of the PDOD:

"there is no assurance that petroleum in marketable quantities or any petroleum at all, will be found".

Q. ARE YOU CHALLENGING THE ASSUMPTION THAT, FOR EXAMPLE, THE ESTIMATED OIL AND RESERVES FOR THE 154 TRACTS TO BE OFFERED ARE WITHIN THOSE RANGES SHOWN IN THE PDOD?

A. What I am suggesting is that, while those estimates may reflect a reasonable range for the hydrocarbons potential

of that area, that range also is subject to some unspecified risk factor.

Q. ARE YOU ABLE TO CITE AN EXAMPLE OF OCS LEASES IN FRONTIER AREAS NOT LIVING UP TO THEIR PRE-SALE EXPECTATIONS?

A. The recent experience in one major offshore frontier area can be used to describe the risks involved in offshore exploration. In December of 1973, the petroleum industry paid the Federal Government approximately \$1.5 billion to explore 87 leases off the coasts of Mississippi, Alabama and Florida. The Final Environmental Impact Statement estimated that 2-3 billion barrels of oil and 2.4-3.9 trillion cubic feet of gas would be recovered from 817,000 virgin acres offered in this frontier area lease sale.

Through March of 1976, initial exploratory drilling efforts on this acreage resulted in fifteen consecutive dry holes and 18 leases representing more than 100,000 acres have been returned to the Federal Government. While there remains some hopes for commercial quantities of oil or gas off Mississippi, Alabama and Florida, this province is a relatively high cost area where drilling costs alone have reached as high as \$5 million per exploratory well. For example, in an article titled "Hopes Wane for Big New Reserves in Eastern Gulf",

the Oil & Gas Journal's Gulf Coast Editor described the situation thusly;

3361

"Some operators with location permits say they are delaying Mafla drilling because of money and rigs. Companies are reluctant to commit millions for a deep Jurassic unknown off Florida when they can drill three exploratory tests off Louisiana at less risk with the same expense and rig."

Similarly, in that same article the author wrote that the remaining exploratory opportunities underlying this acreage could at best yield only a fraction of the reserves industry had expected to find and that:

Nearly a year of disheartening drilling probably has condemned \$850 million worth of acreage....(and) that estimate climbed even higher on March 4 (when)a noncommercial deep test was plugged and abandoned near the center of four tracts that drew \$173 million.

Whether or not oil or gas is ultimately produced from any of the remaining, unrelinquished leases must await additional drilling. However, most knowledgeable observers are now convinced that, since drilling at the most promising tracts has proved a colossal disappointment, any production in this area will be considerably more expensive on a unit basis than that observed in the Central Gulf off the coasts of Texas and Louisiana. At this juncture we can, of course, only speculate as to how much more drilling there would have been and how much additional gas and oil would have already been found (and what the Federal Government's production royalties would have been) if the \$1.5 billion in bonus bids would, instead, have been used to finance exploration efforts in other areas, either onshore or off the coasts of Texas and Louisiana.

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Q. ARE THERE OTHER REASONS, APART FROM BONUS PAYMENTS, WHY EXPLORATION AND DEVELOPMENT ELSEWHERE IS LAGGING BEHIND OPTIMAL LEVELS?

A. Currently, there are a number of reasons as to why development of existing offshore leases is not progressing as rapidly as one might hope. These would include:

- (a) shortages of drilling and workover rigs;
- (b) shortages of tubular goods and other drilling hardware;
- (c) insufficient trained and qualified manpower;
- (d) capital shortages; and
- (e) speculative withholding of development and/or supplies in anticipation of future price increases.

Q. WILL ACCELERATED OFFSHORE LEASING IN THE MID-ATLANTIC HELP TO ALLEVIATE THIS SITUATION?

A. No. In fact offshore Atlantic leasing will in all probability only serve to exacerbate the problem of insufficient developmental activity in other OCS areas. This is so because it will:

- (1) Divert capital funds that otherwise would be available for exploration and development activity elsewhere to lease acquisition expenditures in the offshore Atlantic areas; and
- (2) Divert equipment and manpower away from the Gulf of Mexico and into the Mid-Atlantic areas where it will take much longer to bring productive onstream.

[REDACTED]

This latter point is supported by the PDOD which, in a discussion of manpower availability, recognizes that "there continues to be a shortage of petroleum engineers and highly skilled rig and platform workers." Then, in a discussion of the economic impact of the proposed sale and subsequent development on the Mid-Atlantic region, assumes that "portions of rig crews, operations and service personnel will be imported from other areas such as the Gulf of Mexico where offshore activity is already well developed".

Q. YOU MENTIONED SPECULATIVE WITHHOLDING IN ANTICIPATION OF FUTURE PRICE INCREASES AS ONE MOTIVATION FOR DEFERRING DEVELOPMENT AND/OR PRODUCTION FROM EXISTING SUPPLIES. WOULD YOU PLEASE EXPLAIN THIS BEHAVIOR?

A. Yes. As recently as July of 1971, the FPC raised the ceiling price for new gas sold in interstate commerce in South Louisiana from 20c to 26¢ per Mcf. That higher price derived from a settlement in which the producers agreed that it would provide the necessary incentive for:

a substantial increase in exploratory and developmental activities and make a major contribution to bringing forth additional supplies of gas from the Southern Louisiana Area to meet the demands of all consumers supplied by this area.

Since 1971, prices in the unregulated intrastate markets have increased in leaps and bounds to as high as \$2 and more, and just last week, the FPC increased the regulated price for new

3364
gas sold anywhere in the country to nearly \$1.50 per Mcf, exclusive of local production or severance taxes.

The importance of speculative price expectations with respect to any extractive industry cannot be overemphasized. Simply stated, the exploitation of known mineral deposits (e.g., developmental drilling for natural gas) will be postponed whenever anticipated and foreseeable future price levels are so much greater than current prices that the differential more than offsets the worth obtainable from developing and marketing reserves at prevailing prices. The significance of the role being played by speculative price expectations in the natural gas industry today is vividly described in the following testimony given recently before the FPC by an independent gas producer:

The second alternative would be not to market the gas at all...and take a certain risk that the appreciation of the reserves in the ground over 12 to 24 months, or however long, would more than compensate for whatever the value of the cash flow which we would get from the sale of the reserves over the term of the short-term contract would be. And then we have a third alternative which is a matter of some discussion. Uncommitted gas reserves now are apparently among the finest assets that a company can have -- an independent gas producing company -- and we are constantly, repeatedly, not only with respect to this property but with respect to any reserves we have -- we are being contacted by other gas producing companies, independents and majors, who are interested in buying the reserves in situ. They have expressed their willingness to bid on the come, so to speak, to take the gamble that the reserves would appreciate in the ground.

Similarly, the President of Belco Petroleum Corp., when requesting a 73 percent rate increase for gas produced in the Gulf of Mexico testified that:

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If it should turn out that the Commission decides that it cannot approve a considerably higher price for natural gas, then we expect that both ourselves and the rest of the industry will defer a lot of their exploratory drilling until they find out what happens in 1977.

Q. DID THE PROGRAMATIC PDOD ON ACCELERATED LEASING PRESENT AN ADEQUATE ASSESSMENT OF THE FUTURE ENERGY POTENTIAL OF CONVENTIONAL ONSHORE PETROLEUM SOURCES?

A. No, it did not. The PDOD devoted a total of two short paragraphs to this subject and the only quantification presented in the PDOD related to secondary and tertiary recovery of crude oil which, according to the PDOD, "will provide the chief sources of increase petroleum production ... from existing wells."

Q. DID THE PROGRAMATIC PDOD INDICATE THE ADDITIONAL QUANTITIES OF OIL THAT COULD BE PRODUCED THROUGH SECONDARY RECOVERY OPERATIONS.

A. Yes. It cites FEA estimates that secondary recovery could produce 2.3 million barrels per day for as little as \$5 a barrel, but that additional secondary recovery and tertiary recovery would cost \$9-\$11 per barrel. However, the PDOD did not present any estimates of the additional production that would result from additional secondary and tertiary recovery operations.

Q. ARE YOU AWARE OF STUDIES THAT WOULD INDICATE THAT TERTIARY RECOVERY WOULD SIGNIFICANTLY INCREASE DOMESTIC ONSHORE PRODUCTION AT CURRENTLY PREVAILING PRICES?

A. Yes. A recent study conducted for the Federal Energy Administration concluded that at a constant ~~price~~ price of \$11.28 per barrel, 30.5 billion barrels of additional recoverable reserves could be added through tertiary recovery by the year 2000 and this estimate only ~~pertains~~ ^{applies} to the onshore areas of California, Texas and Louisiana.

Q. DID THIS STUDY INDICATE THE ADDITIONAL OIL THAT COULD BE PRODUCED AT THAT PRICE THROUGH TERTIARY OPERATIONS?

A. The report stated that tertiary production could reach 2 million barrels per day by 1985 and nearly 4 million barrels per day in 1995.

Q. HAVE OTHER AUTHORITIES PRESENTED FAR MORE OPTIMISTIC VIEWS AS TO THE PRODUCTIVE POTENTIAL OF CONVENTIONAL, DOMESTIC ONSHORE PETROLEUM SOURCES?

A. Yes, on May 3 of this year, George P. Mitchell, an independent producer and the former President of the Texas Independent Producers and Royalty Owners Association, spoke at the annual conference of the American Gas Association. According to Mr. Mitchell:

"We have around 33 billion barrels of proved oil reserves today, but locked in our geological basins are about 385 billion barrels. Present proved reserves of natural gas are approximately 228 trillion cubic feet, yet we have a potential of 685 to 1,200 Trillion cubic feet."

65 Q. Have there been any major ^{new} onshore discoveries in recent years?

A. Yes. The Jay field in the Florida Panhandle was discovered by Exxon and the Louisiana Land & Exploration Company in 1970. In 1973, ^{the} Exxon geologists discussed this field in a paper presented before the Gulf Coast Association of Geological Societies.

They called the Jay field "the most important discovery in the United States since Prudhoe Bay was opened in 1968" and "Without question, many more significant oil and gas accumulations are yet to be found in this area, ^{these} these."

authors also wrote that "The Jay discovery points up that there are still large reserves in the U.S. yet to be discovered." Their prediction as to the productive potential of this area was confirmed in 1974 and 1975 by Union Oil's discovery of the Churchill field and Getty's Peter Klein Well, which opened the new Hatter's Pond field. Both of these major new discoveries are in Southern Alabama, near Mobile. According to the Oil and Gas Journal, the Churchill and Hatter's Pond discoveries are regarded to be the most important onshore strikes since Jay field and some of the more optimistic geologists

... year, the American Association of Petroleum Geologists classified both fields as containing at least 50 million barrels of recoverable oil or 300 Billion Cubic feet of gas.

expect that one of the two or perhaps both may be even larger than Tazewell.

Perhaps the best example of ^{substantial} new reserves being brought on through increased onshore drilling is the Laredo area of South Texas. During the early sixties, several gas wells were completed in what is now called the South Laredo but, due to low prices, the wells were abandoned and the area lay dormant until mid 1973, when intrastate gas prices rose more than 300 percent.

Since that time, with gas prices reaching as high as \$2 per Mcf,

this area has been the scene of
one of the most active drilling
campaigns ^{anywhere} seen in recent years
and proved gas reserves are estimated
at between 1 and 3 trillion
cubic feet and some geologists
believe the the area may ultimately
contain 10 trillion cubic feet
of reserves.

3372 ~~Sam~~ Mitchell defined the greatest U.S. basin as that extending from Brownsville, Texas, to New Orleans and 100 miles inland, where he believes 65% of the nation's gas reserves are located.

Q. DID MR. MITCHELL CITE ANY SPECIFIC EXAMPLES AS TO HOW THIS VAST ONSHORE POTENTIAL MIGHT BE EXPLOITED?

A. Yes. For example, Mr. Mitchell stated that with proper price incentives and well-spacing adjustments, the San Juan basin of New Mexico could be completely redrilled in order to increase gas production by 1 billion cubic feet a day. This figure alone is greater than the peak daily production ^{predicted} for OSC Sale #40 at the lower end of the Geological Survey's reserves estimates for that sale.

Q. *Have there been any major new onshore discoveries in recent years?*

Q. YOU JUST INDICATED THAT ADDITIONAL GAS PRODUCTION WOULD BE ACHIEVED AS A RESULT OF INCREASED PRICES. IN ITS DISCUSSION OF CONVENTIONAL PETROLEUM SOURCES AS ALTERNATIVES TO ACCELERATED OCS LEASING, DID THE PROGRAMATIC PDOD CONSIDER THE RELATIONSHIP OF CONVENTIONAL GAS SUPPLIES TO PRICE?

A. No, it did not. In fact, enhanced natural gas production from either onshore or OCS areas already under lease is not mentioned as an alternative to accelerated OCS leasing.

Q. MR. DONKIN, THE PROGRAMMATIC PDOD DISCUSSED MANDATORY CONSERVATION OF ENERGY AS ONE POLICY ALTERNATIVE TO INCREASING OCS PRODUCTION THROUGH ACCELERATED LEASING. DID THAT ANALYSIS IMPLY THAT MANDATORY CONSERVATION MEASURES WOULD RESULT IN A REDUCTION OF OIL IMPORTS?

A. While the Programmatic PDOD does not explicitly state that conservation measures will reduce oil imports, at page 9, the following appears:

Conservation is often considered to be an appealing policy because there are no environmental costs to conserving oil. This is in fact true, as long as conservation of oil does not simply imply greater consumption of other fuels which have environmental costs as great or greater than those of oil consumption.

One can logically conclude from this analysis that -- assuming a set of conservation measures designed to preclude the consumption of other fuels with equal or greater environmental costs -- it is "in fact true" that conservation is an "appealing policy" alternative to increased OCS oil production.

Q. ARE THERE MANY CONSERVATION ALTERNATIVES WHICH WOULD ACCOMPLISH THAT RESULT?

A. There are a number of conservation measures that would result in a reduction in energy consumption without

creating additional environmental costs. Several of these alternatives were listed at page 9 of the Programmatic PDOD. It is obvious that improvements in the efficiency of automobiles and appliances as well as net energy savings resulting from improved insulation on thermal standards for residential and commercial structures will not lead to an increase in the consumption of alternative fuels.

Q. AT PAGE 28, THE PROGRAMMATIC PDOD CONCLUDES THAT MANDATORY CONSERVATION IS NOT A DESIRABLE ALTERNATIVE TO ACCELERATED LEASING. DO YOU AGREE WITH THE ANALYTICAL FOUNDATION UPON WHICH THIS CONCLUSION IS BASED?

A. No, I do not. The PDOD asserts that, since the production costs of OCS oil range between \$1 and \$7 per barrel, mandatory conservation measures are only appropriate after the exploitation of all domestic supply alternatives costing less than \$11 per barrel, which is the current price of oil. The stated justification for this conclusion is that society will incur a net welfare loss so long as the cost of OCS production is less than the value of price associated with that production. This comparison, however, fails to recognize an elementary principle of freshman economics -- that the ^{demand for} price of a good is inversely related to the ^{price of} demand for that good.

Q. WOULD YOU PLEASE EXPLAIN?

A. Yes. The reasoning contained in the Programmatic PDOD is wholly erroneous since the existing \$11-\$12 price of oil is a function of current, as opposed to future demand levels. However, effective conservation measures would have a direct and rather obvious impact upon the energy demand function. Specifically, successful conservation policies would shift the entire energy demand function downward at each corresponding price level. Therefore, the appropriate comparison is not OCS production versus \$11 oil today, rather it is OCS production versus some combination of energy conservation and increased production from non-OCS energy sources. With respect to this last point, reference once again to the testimony of Dr. Gaskins before the Ad Hoc Committee on Outer Continental Shelf seems appropriate. There, in a discussion concerning the long-term viability of the OPEC cartel, Dr. Gaskins stated the following:

It is no secret that, the Europeans have been driving small cars for a long time. Why? Because they have had very high gas prices in Europe for decades. It is no surprise that, people in New England are insulating their homes because fuel oil is expensive. We anticipate there will be a substantial reaction around the world over time. It takes time to change your driving habits and the way you heat your house, but there will be a dramatic substitution away from expensive oil into other forms of energy or into conservation, not using energy, and when you look down the road 10 years, you have some broad forces that come to play. In 10 years new sources of energy can be brought on line and in 10 years if these prices continue at this high level, people can make major changes in their consumption patterns.

Q. Mr. Donkin, I show you Exhibit ____, which is a document dated September 1975 and titled "Programatic PDOD on the OCS Accelerated Leasing Program". Have you analyzed this document?

A. Yes, I have.

Q. Does this Programatic PDOD set forth various policy options for consideration as alternatives to a policy to accelerate OCS leasing?

A. Yes, it does. At page two, the Programatic PDOD discusses the perceived problem of insecure and expensive oil imports. Then, at page three, four possible U.S. policy responses for dealing with this problem are presented. These policy responses are as follows:

- (1) Accelerate OCS leasing in order to increase OCS oil and gas production;
- (2) Do not accelerate leasing, and instead continue to rely on imports;
- (3) Do not accelerate leasing, and instead increase production from non-OCS energy sources; and
- (4) Do not accelerate leasing, and instead reduce imports through a program of energy conservation.

Q. Do you consider the PDOD's discussion of possible policy responses to the specified problem ^{adequate?} ~~sufficiently comprehensive~~?

A. No, I do not. Consider, for example, the policy responses proposed by the PDOD with respect to the problem of insecure and expensive foreign oil. The authors of the

3377

PDOD conclude on page 14 that:

"The economic benefits from the proposed action thus include the cost savings over imported oil and the benefits of relying on a secure source of supply for a greater proportion of oil consumption."

There is, however, no discussion of the extent to which imported oil may become increasingly "insecure and expensive" over time. In other words, the PDOD discusses possible solutions to the oil import problem within a static or short-term context, as opposed to addressing the issue in terms of a secular or long-term perspective. By so doing, the authors of the PDOD, therefore, ignored one important policy response which would seem rather obvious were the problem to be analyzed in a long-run context. Specifically, if we accelerate production from the frontier areas of the CCS now, those areas may be depleted later, when needed as much or even more.

Q. WOULD YOU PLEASE EXPLAIN?

A. Yes. According to the PDOD, U.S. imports of oil in 1974 amounted to 6 million barrels per day and accelerated leasing of OCS lands could possibly result in increased daily production of 3 million barrels of oil and 12 billion cubic feet of gas. Since the authors of the

PDOD assumed a real resource cost of \$1 - \$7 per barrel for OCS oil, they concluded that additional OCS oil would result in lower total energy costs and a reduction in the U.S. reliance on foreign energy sources. However, depending upon one's assumptions as to future energy demand and supply relationships, this result may in fact not obtain. This is so because the oil and natural gas underlying the OCS is, unlike most manufactured goods, *not a* replacable resource. In other words, each barrel of oil or Mcf of gas, when produced, is essentially lost forever. Therefore, in assessing the merits of a program designed to reduce both energy costs and reliance on imports, a fully informed decision can only be made if the decision-maker has some notion of the extent to which energy costs and the level of imports are likely to change over time.

Q. *Did* Are you suggesting that, in fact, the authors of the Programatic PDOD should have considered *the option of utilizing* the OCS as a form of ~~strategic~~ *to* energy reserve ~~as a~~ safeguard against even more expensive or insecure imported oil in the future?

A. *No.* ~~What I am suggesting is that,~~ Assuming that proper protection of the environment is assured, the decision to accelerate OCS leasing so as to reduce the Nation's dependence on insecure and expensive oil imports should be based upon a complete assessment of both short-term and long-term comparisons of OCS production against all

P...

of the relevant alternatives. This type of [REDACTED]
is not contained in the Programatic PDOD.

Are there
Q. ~~Would you please~~ cite some examples of the additional considerations which should have been addressed in the Programatic PDOD?

A. ~~Yes~~. For example, let us assume that conventional domestic petroleum production from non-OCS lands will, over time, account for an ever smaller percentage of our total energy consumption. To the extent that this were to occur, our total energy demands would then be met from some combination of onshore petroleum production at reduced levels, of domestic non-petroleum sources, additional OCS production, or imports. Thus, by maximizing OCS production in, let us say, 1985 or 1990 through a program designed to accelerate OCS leasing now, we may, in fact, be increasing our ultimate dependence upon imports in the year 2000.

were
Q. ~~What~~ other important long-term relationships ~~were~~ ignored by the authors of the Programatic PDOD?

A. As I stated previously, the PDOD compares the anticipated real resource cost of OCS oil to the current price of imported oil. However, the PDOD paid only limited lip service to the possibility of changing conditions which might alter the existing relationships. For example, at page 24, the PDOD states that perhaps in a few years,

3380

OCS leasing may appear less attractive if the value of oil declines as a result of the collapse of OPEC.

Then at page 26, in connection with this point, the PDOD states that "if OPEC is expected to collapse within the near future or not at all, we might postpone leasing for three years to find out what actually happens to OPEC". However, the PDOD is completely devoid of any discussion of the likelihood of OPEC's disintegration or even any speculation as opposed to comprehensive analysis of the future price of oil either with or without an effectively operating OPEC cartel.

Q. You just mentioned that the Programatic PDOD failed to present an analysis of anticipated prospective price levels for imported oil. Why should this be an important consideration in terms of assessing the merits of accelerating OCS leasing?

A. Given that (1) the stated objective of the program is, in part, to reduce our dependence on expensive imported oil, and (2) there are long-lead-times between lease acquisition and the attainment of significant production in the OCS, the relevant comparison is not what imported oil costs today versus OCS production, rather it is a comparison of that anticipated relationship sometime in the future. Obviously, to the extent that import prices are expected to decline significantly, then OCS

production becomes less attractive. If the cost differential is expected to remain at currently observed levels then, ceteris-paribus, enhanced OCS production might provide one means to reducing total energy costs.

Q. ASSUME THAT THE PRICE OF IMPORTED OIL IS EXPECTED TO RISE SUBSTANTIALLY ABOVE CURRENT LEVELS. WHAT RELEVANCE WOULD THIS HAVE WITH RESPECT TO SELECTING THE OPTIMUM LEVEL OF OCS LEASING?

A. Under this assumption, the rate of increase in imported oil prices could in large part determine the optimum rate of OCS leasing. If it is expected that imported oil costs will remain relatively stable over the short-term and then increase substantially in the more distant future, then, depending upon the rate of interest at which future dollars are discounted, the appropriate policy response might actually be to postpone OCS leasing today in favor of increasing OCS production in the future when the cost savings in relation to imported oil will be greater. The point that I wish to emphasize here, however, is that rather than rushing headlong into a greatly expanded OCS leasing program simply because the OPEC cartel is currently establishing prices which cause oil to be priced at \$11 - \$12 per barrel in the U.S., the preferred approach would be to first thoroughly

3382



analyze all pertinent long-term energy relationships.
This was not the approach taken by the authors of the
Programatic PDOD.

Q. Mr. Donkin, Dr. Darius Gaskins, Jr., while in the Office of OCS Program Coordination, was one of the authors of the Programatic PDOD. Are you aware of any evidence that would suggest that either Dr. Gaskins or other Interior Department officials have, for internal planning purposes, made explicit assumptions as to either the long-run costs of imported oil or the viability of the OPEC cartel?

A. Yes. In June of 1975, Dr. Gaskins appeared before the House of Representatives' Ad Hoc Committee on Outer Continental Shelf. The purpose of Dr. Gaskins' testimony was to describe the methods used by the Interior Department in evaluating bonus bids submitted by industry for offshore oil and gas leases. At that hearing, Dr. Gaskins testified that the price of oil used by the Department for evaluating the expected worth of OCS leases ranges between \$5 and \$11, with an arithmetic mean of \$7.67. Dr. Gaskins also testified that "We are convinced by 1985 it will fall in the range of \$5 to \$11 in 1975 constant dollars."

Q. Mr. Donkin, I show you ~~Exhibit Number~~ *Exhibit*, which is a memorandum dated January 6, 1975 from Darius W. Gaskins, Jr. to the Chief, Conservation Division, U.S. Geological Survey on the subject: Recommended Changes in Economic Data Used in OCS Tract Evaluations. Are you familiar with this document?

A. Yes, I am.

- memorandum*
- Q. Does this ~~price~~ indicate Dr. Gaskin's recommendation as to the probable price of oil?
- A. Yes, in this memorandum, Dr. Gaskins recommended that a "most probable" price of \$7 per barrel be adopted for purposes of evaluating OCS tracts leased by the Interior Department.
- Q. I show you Exhibit Number ____, which is a memorandum dated May 5, 1975 from Mr. Robert H. Lawton, Chief, Division of Minerals Program Development and Analysis to the Manager, Gulf of Mexico OCS Office and through the Chief, Conservation Division, Geological Survey. The subject of this memorandum is as follows: Prices of Oil, Gas and Discount Rate to be Used in Pre-Sale Evaluation for Outer Continental Shelf (OCS) Lease Sale Nos. 38 and 38-A. Are you familiar with this memorandum?
- A. Yes, I am.
- Q. Does Mr. Lawton indicate his Division's recommendation as to the price of oil to be used in evaluating tracts for Lease Sale Nos. 38 and 38-A?
- A. Yes. Mr. Lawton recommended that the price of oil remain the same as that used in OCS Sale No. 37, which was held on February 4, 1975. The prices recommended by Mr. Lawton were \$5, \$7 and \$11 per barrel, with \$7 per barrel as the most likely equilibrium price.

Q. Do you know when OCS Sale Nos. 38 and 38-A took place?

A. OCS Sale No. 38, which covered 1.3 million acres off the coasts of Texas and Louisiana, was held on May 28, 1975. This was followed by Sale No. 38-A on July 29, 1975, when 1.8 million acres were put up for sale.

Q. While appearing before the Ad Hoc Committee on Outer Continental Shelf, did Dr. Gaskins state his views as to the likelihood of OPEC continuing to maintain control over world oil prices?

A. Yes. Mr. Gaskins testified that "We are predicting a softening of the cartel, that they will lower their prices in real terms" and that "a glut of oil is going to drive the price down worldwide." These statements are also consistent with Dr. Gaskins' January 6, 1976 memorandum wherein he stated the apparent chance that the international petroleum cartel will fall apart and that petroleum prices could return to pre-cartel levels.

Q. Earlier, you testified that a decision-maker might opt for delaying OCS production if the price of oil is expected to increase dramatically sometime in the future. Did Dr. Gaskins address this issue in his June 1975 Congressional testimony?

A. Yes, he did. In response to a question from Congressman Hughes of New Jersey regarding the possibility of bankrupting our domestic resource base through accelerated leasing, Dr. Gaskins stated the following: "If you wanted to speculate that the price would be much higher later on, say 20 years from now you should hold

back production. But the energy situation is very complex because of the relationship between what we do now and what happens in the world to the price of oil. To reassure you a little bit, as I think Secretary Morton indicated yesterday, we know now how to make anything out of coal that you can make out of oil. We can do it.

As you know, we can convert coal into petroleum. It is expensive but we know we have centuries and centuries of coal in this country in terms of current levels of energy consumption."

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Comparison of Maximum Efficient Rates for
Reservoirs and Maximum Production Rates for
Well Completions, in Mcf/day for
Wells Operated by Exxon at the Eugene Island Block 295 Lease

Line No.	Well	2d Quarter 1975 MER	2d Quarter 1975 MER	2d Quarter 1975 MPR ÷ MER	2d Quarter 1976 MER	2d Quarter 1976 MPR	2d Quarter 1976 MPR ÷ MER
1	A002	-	4900	-	-	3200	-
2	A014 D	-	6000	-	-	6000	-
3		<u>12000</u>	<u>10900</u>	90.83	<u>9200</u>	<u>9200</u>	100.00
4	A003	-	6000	-	-	6000	-
5	A008	-	4500	-	-	4500	-
6	A014	-	7000	-	-	5700	-
7	A015 D	-	11000	-	-	12500	-
8		<u>30000</u>	<u>28500</u>	95.0	<u>28700</u>	<u>28700</u>	100.00
9	A008 T	6000	4200	70.0	-	-	-
10	A008 D	-	2510	-	-	2510	-
11	A004 A	-	4000	-	-	4710	-
12	A007 T	-	3900	-	-	4300	-
13	A012 D	-	4350	-	-	7000	-
14		<u>16000</u>	<u>14760</u>	82.0	<u>12700</u>	<u>18520</u>	100.0
15	A010	6160	6160	100.0	-	-	-
16	A004 T	8000	5100	63.7	5000	5000	100.0
17	A004 D	5000	4100	82.0	5000	4300	86.0
18	A001	-	8700	-	-	20500	-
19	A005	-	25000	-	-	25000	-
20	A006	-	22800	-	-	25800	-
21	A007	-	8000	-	-	8000	-
22	A009	-	25000	-	-	27600	-
23	A011	-	24000	-	-	26300	-
24	A012	-	9000	-	-	5400	-
25	A012T	-	-	-	-	4000	-

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Line No.	Well	2d Quarter 1975 MER	2d Quarter 1975 MPR	2d Quarter 1975 MPR ÷ MER	2d Quarter 1976 MER	2d Quarter 1976 MPR	2d Quarter 1976 MPR ÷ MER
26	A013	-	25000		-	25000	
27	A016	-	-		-	16400	
28	A018	-	-		-	3700	
29	A019	-	-		-	17700	
30		<u>241000</u>	<u>147500</u>	61.2	<u>208300</u>	<u>205500</u>	98.7
	Totals	326160	241240	67.81	274720	271220	98.71

Source: U.S. Geological Survey, Conservation Division, Approved
Maximum Efficient Rates for Reservoirs and Maximum
Production Rates for Well Completions; April 25, 1975
and April 15, 1976

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Case No. 75-C-208
Exhibit
Page 1 of 3

Comparison of Maximum Efficient Rates for
Reservoirs and Maximum Production Rates for
Well Completions, in Mcf/day for
Wells Operated by Kerr-McGee Corporation at the Ship Shoal 208 Field

Well Number	2d Quarter 1975 MER	2d Quarter 1975 MPR	2d Quarter 1975 MPR ÷ MER	4th Quarter 1975 MER	4th Quarter 1975 MPR	4th Quarter 1975 MPR ÷ MER
J003 D	7000	5300	75.7%	2900	2900	100.0%
J005 D	6000	4000	-	-	4000	-
I009	<u>2700</u>	<u>200</u>	<u>-</u>	<u>-</u>	<u>200</u>	<u>-</u>
	8700	4200	48.3	4200	4200	100.0
J005	7500	5000	66.7	4100	4100	100.0
D005 D	-	2200	-	-	2200	-
I008 D	-	3500	-	-	3400	-
	<u>11500</u>	<u>5700</u>	<u>49.6</u>	<u>5600</u>	<u>5600</u>	<u>100.0</u>
D004	7000	2300	32.9	2300	2300	100.0
I008	8000	4900	61.3	4500	4500	100.0
D005	5000	2600	52.0	2600	2600	100.0
C002	8000	8000	100.0	-0-	5400	-
C005	12000	9300	-	-	9000	-
C006	<u>-0-</u>	<u>-0-</u>	<u>-</u>	<u>-</u>	<u>16850</u>	<u>-</u>
	12000	9300	77.5	25850	25850	100.0

Well Number	2d Quarter 1975 MER	2d Quarter 1975 MPR	2d Quarter 1975 MPR ÷ MER	4th Quarter 1975 MER	4th Quarter 1975 MPR	4th Quarter 1975 MPR ÷ MER
007	9000	6000	66.7%	6000	6000	100.0%
A003D	1100	300	27.3	-0-	200	-
J001 D	14100	3100	22.0	3100	3100	100.0
D003 D	-	5800	-	4400	4400	-
J007 D	-	900	-	-	-	-
	17800	6700	37.6	4400	4400	100.0
I005 D	12000	3200	26.7	1000	1000	100.0
A001 D	-	2400	-			
I002 D	-	1300	-	1300	1300	100.0
	17000	3700	21.8			
H004 D	8000	4800	60.0	4400	4400	100.0
D002 D	-0-	-0-	-0-	1575	1575	100.0%
H010 D	6000	4000	66.7	4000	4000	100.0
H012 D	-	3100	-	2700	2700	-
J007	-	2400	-	-	-	-
	16000	5500	34.4	2700	2700	100.0

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Case No. 75-C-208
Exhibit
Page 3 of 3

Well Number	2d Quarter 1975 MER	2d Quarter 1975 MPR	2d Quarter 1975 MPR ÷ MER	4th Quarter 1975 MER	4th Quarter 1975 MPR	4th Quarter 1975 MPR ÷ MER
H012	5000	3300	66.0	3000	3000	100.0
F008 D	5500	4000	72.7	1300	1300	100.0
I002	10000	800	8.0	800	800	100.0
E014D	2000	1400	70.0	1400	1400	100.0
I006	<u>21000</u>	<u>8000</u>	<u>38.1</u>	<u>7100</u>	<u>7100</u>	<u>100.0</u>
Totals	219200	102100	46.6†	94125	99725	105.9%

Source: U.S. Geological Survey, Conservation Division,
Approved Maximum Efficient Rates for
Reservoirs and Maximum Production Rates
for Well Completions; April 25, 1975 and
October 1, 1975

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**Natural Gas Production From Selected Offshore Louisiana
Fields as a Percent of Field MER and Field MPR, March 1976**

<u>Line No.</u>	<u>Field</u>		(1) Gas Production in March, 1976 (Mcf/Day)	(2) Field MPR For 1st Quarter 1976 (Mcf/Day)	(3) (1) as a Percent of (2)	(4) Field MER For 1st Quarter 1976 (Mcf/Day)	(5) (1) as a Percent of (4)
1	West Cameron	45	19930	30510	65.3	31700	62.9
2	"	71	67434	79850	84.4	122100	55.2
3	"	110	46937	73849	59.5	121350	38.7
4	"	146	100505	106700	94.2	132350	75.9
5	"	149	19232	28000	68.7	35400	54.3
6	"	165	36538	63200	57.8	65500	55.8
7	"	180	328909	425477	77.3	503100	65.4
8	"	192	80691	128600	62.7	124100	65.0
9	"	280	42955	47700	90.0	57550	74.6
10	"	587	155454	178600	87.0	215500	72.1
11	East Cameron	14	13957	22500	62.0	127800	10.9
12	"	33	96282	195150	49.3	205700	46.8
13	"	62	51833	75400	68.7	73750	70.3
14	"	64	135192	160200	80.4	226750	59.6
15	"	89	47172	59130	79.8	76020	62.1
16	"	245	41812	46250	90.4	57750	72.4
17	"	265	15434	36600	42.2	55500	27.8
18	"	271	281658	446800	63.0	504700	48.2
19	"	261	42550	52100	81.7	69600	61.1
20	Vermilion	14	41412	254920	16.2	264300	15.7
21	"	39	123204	121426	101.5	192980	63.8
22	"	46	14284	23960	59.6	30160	47.4
23	"	71	15442	20290	76.1	22700	68.0
24	"	76	49090	59500	83.8	80010	56.7
25	"	131	57742	61285	94.2	100500	53.2
26	"	245	101829	101696	100.1	117100	87.0
27	"	250	91598	114700	79.8	147750	62.0
28	"	255	52977	61832	85.7	72000	73.6
29	"	265	36213	37230	97.3	37230	97.3
30	"	320	186090	215558	86.3	242921	76.6

Line
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3353

Case No. 75-C-208

Exhibit No. _____

Page 2 of 2

	Field		(1) Gas Production in March, 1976 (Mcf/Day)	(2) Field MPR For 1st Quarter 1976 (Mcf/Day)	(3) (1) as a Percent of (2)	(4) Field MER For 1st Quarter 1976 (Mcf/Day)	(5) (1) as a Percent of (4)
31	South Marsh Island	6	23895	28160	84.8	48480	49.3
32	"	23	159741	131190	121.8	184800	86.4
33	"	48	213440	247290	86.3	383830	55.6
34	"	66	119680	149090	80.3	183100	65.4
35	Eugene Island	32	13251	25100	52.8	32300	41.0
36	"	205	136740	213930	63.9	310800	44.0
37	"	238	26340	29400	89.6	32250	81.7
38	"	258	59676	86941	68.6	123385	48.4
39	"	266	194806	195650	99.6	322500	60.4
40	"	273	109770	109770	81.9	132500	82.8
41	"	292	248326	324400	76.5	440800	56.3
42	"	296	531629	650720	81.7	717160	74.1
43	"	306	119423	156000	76.6	182500	65.4
44	Ship Shoal	28	14297	29098	49.1	32198	44.4
45	"	32	29572	56887	52.0	56887	52.0
46	"	169	133896	179210	74.7	291600	45.9
47	"	176	118734	130940	90.7	180400	65.8
48	"	222	280039	308950	90.6	529400	52.9
49	"	274	81199	93750	86.6	161200	50.4
	Totals		5009618	6488498	77.2	8555961	58.6

Sources: Column (1) - U.S. Geological Survey, Outer Continental Shelf,
Sales of Lease Production, Production Month March 1976.

Columns (2) and (4) - U.S. Geological Survey, Conservation Division.

Estimated Additional Wells and Production Capacity If New Wells Are
Completed in Selected Reservoirs Where the MER is at Least 250 Bbl./Day
Greater Than the MPR and the Average MPR Per Well is at Least 250 Bbl./Day
(2d Quarter 1976)

Field and Reservoir	MER	Number of Wells	MPR Per Well	Total MPR	MER Minus Total MPR	Estimated Number of New Wells	Estimated Additional MPR
<u>Eugene Island 330</u>							
G RB	3000	1	2510	2510	490	1	490
I1 B	1900	1	1290	1290	610	1	610
I3 RB	1910	2	655	1310	600	1	600
GA 2	9000	11	686	7545	1455	2	1372
NB 1	6500	10	605	6050	450	1	450
NB 1B 2	2000	3	523	1570	430	1	430
KE 1 FBA	2300	3	633	1900	400	1	400
KE 1 FBB	8650	6	1116	6695	1955	2	1955
LF FBA #1	5500	5	750	3790	1710	3	1710
LF FBB #1	6500	5	1060	5300	1200	1	1060
MG 4 FBB	750	1	450	450	300	1	300
OI 1 FBA	7000	6	800	4799	2201	3	2201
OI 2 FBA	2500	3	639	1918	582	1	582
OI 2 FBF 2	1000	1	670	670	330	1	330
J2 RA	600	1	410	410	190	1	190
L RA	6000	6	521	3125	3675	7	3647
L RB	5400	4	670	2680	2720	4	2680
L RC	5700	2	2095	4190	1510	1	1510
L RD	1300	1	640	640	660	1	640
L RE	4000	4	656	2626	1374	2	1312
L RF	3705	3	960	2880	825	1	825
ORD	1600	1	420	420	1180	3	1180
OO RA	6500	3	817	2450	4050	5	4050
OO RB	2500	3	713	2140	360	1	360
Q RA	3000	2	1370	2740	260	1	260
Q RC	1600	1	320	320	1280	4	1280
F SI	1250	4	2385	9540	2960	2	2960
I1 SI	3250	2	1264	2529	721	1	721
I2 SI	3500	2	1167	2334	1166	1	1166
3800 SA	720	1	268	268	452	1	268
5500 BNW	3920	4	842	3370	550	1	550

Field and Reservoir	MER	Number of Wells	MPR Per Well	Total MPR	MER Minus Total MPR	Estimated Number of New Wells	Estimated Additional MPR
<u>Eugene Island 330 (Continued)</u>							
5500 S1	2500	1	1900	1900	600	1	600
7000 S1	1010	2	308	617	393	1	308
8030 S1	1475	1	670	670	805	1	670
8100 S3	2160	2	700	1400	760	1	760
						<u>51</u>	<u>38367</u>
<u>Eugene Island 75</u>							
KM FB A	800	1	350	350	450	1	350
MJ FB E	1650	1	320	320	1330	4	1280
E RA	2500	2	750	1500	1000	<u>2</u>	<u>1000</u>
						7	2630
<u>Eugene Island 188</u>							
N RB	2700	2	895	1790	910	1	895
N RE	700	1	440	440	260	1	260
	600	1	310	310	290	<u>1</u>	<u>290</u>
						3	1445
<u>Eugene Island 205</u>							
DU1 4B1C	1200	1	380	380	820	2	760
EE S12	1400	1	900	800	600	<u>1</u>	<u>600</u>
						3	1360
<u>Eugene Island 208</u>							
A7 WFB	3000	2	735	1470	1530	2	1470
B 1	3500	3	827	2480	1020	1	827
9 B1	1500	2	255	510	990	3	765
12 CSTR2	1150	2	250	500	600	2	500
18-I	1250	1	290	290	960	<u>3</u>	<u>870</u>
						11	4432
<u>Eugene Island 258</u>							
JB	1570	2	595	1190	380	1	380
JB A	3510	3	679	2037	1473	<u>2</u>	<u>1358</u>
						3	1738

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<u>Field and Reservoir</u>	<u>MER</u>	<u>Number of Wells</u>	<u>MPR Per Well</u>	<u>Total MPR</u>	<u>MER Minus Total MPR</u>	<u>Estimated Number of New Wells</u>	<u>Estimates Additional MPR</u>
<u>Eugene Island 276</u>							
P RA SU IW	1500	3	313	940	560	2	560
R RA IW	2280	3	390	1170	1110	3	1110
VH 4B D1	800	1	530	530	270	1	270
VH 10 DE	1800	2	465	930	870	2	870
						<u>8</u>	<u>2810</u>
<u>Eugene Island 296</u>							
X RA	2000	2	535	1070	930	2	930
<u>Eugene Island 306</u>							
4 ERA	1500	3	273	820	680	2	546
<u>Ship Shoal 107</u>							
M6 FBDB	1000	1	717	717	283	1	283
M6A FB 1	800	2	255	510	290	1	290
R3 FB H	1200	1	715	715	485	<u>1</u>	<u>485</u>
						<u>3</u>	<u>1058</u>
<u>Ship Shoal 154</u>							
K3 3	880	1	470	470	410	1	410
<u>Ship Shoal 169</u>							
D10 S	1400	2	330	660	740	2	660
<u>Ship Shoal 176</u>							
KNG 1	3500	4	642	2570	930	2	930

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Field and
Reservoir

Ship Shoal 204

	<u>MER</u>	<u>Number of Wells</u>	<u>MPR Per Well</u>	<u>Total MPR</u>	<u>MER Minus Total MPR</u>	<u>Estimated Number of New Wells</u>	<u>Estimated Additional MPR</u>
C3 FB 4	1500	2	375	750	750	2	750
C3 FB 5	1000	2	362	723	277	1	277
D2 FB 5	4920	7	602	4212	708	1	602
B6 RA	1500	2	544	1090	410	1	410
B 10 RA	2000	3	277	1130	870	2	754
						7	2793

Ship Shoal 207

C6 RA	4000	10	360	3605	395	1	360
C6 RG	1100	2	330	660	440	1	330
C7 RG	1600	4	300	1200	400	1	300
D1 RA	1500	4	290	1160	340	1	290
D1 RF	2200	3	565	1695	505	1	505
						5	1785

Ship Shoal 208

TP 11 AP B 3	1490	4	262	1050	440	1	262
TP 11 CF B 4	1000	2	346	692	308	1	308
TP 11 DF B 3	3295	4	370	1477	1818	5	1818
DU 1 4 RA	600	1	260	260	340	1	260
TP 14 RC	3250	5	576	2880	370	1	370
						9	3018

Ship Shoal 222

EC FB G	1200	3	320	640	560	1	320
FA 2 FBC	1000	1	710	710	290	2	580
EDA	1400	3	305	915	485	1	305
EIA	3850	5	622	3110	740	1	622
						5	1827

South Pette 20

B1 FB 1	1500	2	273	820	680	2	546
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<u>Field and Reservoir</u>	<u>MER</u>	<u>Number of Wells</u>	<u>MPR Per Well</u>	<u>Total MPR</u>	<u>MER Minus Total MPR</u>	<u>Estimated Number of New Wells</u>	<u>Estimated Additional MPR</u>
<u>South Petto 23</u>							
8500' B	2600	2	754	1507	1093	2	1093
<u>Bay Manchard 2</u>							
3650' LD	2080	3	563	1690	390	1	390
8200' BUQ	3370	9	354	2896	474	1	354
8300' BUIW	6170	23	274	6310	460	1	274
8750' BUW	4705	9	466	4190	515	1	466
O RD	19850	16	1066	17060	2790	3	2790
010 RB	1850	1	1445	1445	405	1	405
012 RB	1475	1	1030	1030	445	1	445
016 RB	1200	1	800	800	400	1	400
P RA	3000	3	330	990	2010	6	1980
P2 RA	900	2	270	540	360	1	270
						17	7774
<u>South Timbalier 21</u>							
D2 RDC	3500	10	309	3094	406	1	309
D 10 RDC	4500	14	280	3917	583	2	560
D 12 RNSU	5000	9	522	4695	305	1	305
						4	1174
<u>South Timbalier 52</u>							
7600' B	1100	2	340	680	420	1	340
<u>South Timbalier 131</u>							
E 3 RD	880	1	586	586	294	1	294
E 3 RE	700	1	310	310	390	1	310
E 5 RA	975	1	690	690	285	1	285
						3	889

3358

Field and Reservoir	MER	Number of Wells	MPR Per Well	Total MPR	MER Minus Total MPR	Estimated Number of New Wells	Estimated Additional MPR
<u>South Tisballe 135</u>							
G 13 RE	800	1	310	310	490	1	310
H 15 RT	1200	1	370	370	830	2	740
I 11 RC1	1000	2	250	520	480	1	260
J 3 RA IW	2000	5	301	1505	495	1	301
J 7 RA	2000	2	388	775	1225	3	1164
						8	2775
<u>South Tisballe 176</u>							
E RH	1590	2	342	683	907	4	684
F 2 RH	5500	7	585	4095	1405	2	1170
G 2 RE	830	1	460	460	370	1	370
						5	2224
<u>Grand Isle 16</u>							
BF 2 RE IG	5630	5	924	4620	1010	1	924
B 2 RE IW	2070	2	395	790	1280	3	1185
B 4 RC IW	1780	2	255	510	1270	5	1270
B 4 RT IA	3430	3	733	2200	1230	2	1230
C1 RHP1W	13364	8	1099	8790	4574	4	4396
C4 RE 2 IG	940	1	500	500	440	1	440
C4A RW IW	7300	7	470	3290	4010	9	4010
C6 RE4IW	1950	2	600	1200	750	1	600
C7 REES IW	861	2	260	520	341	1	260
						27	14315
<u>Grand Isle 41</u>							
PH B1	8600	18	262	4710	3890	14	3668

<u>Field and Reservoir</u>	<u>MER</u>	<u>Number of Wells</u>	<u>MPR Per Wells</u>	<u>Total MPR</u>	<u>MER Minus Total MPR</u>	<u>Estimated Number of New Wells</u>	<u>Estimated Additional MPR</u>
<u>Grand Isle 43</u>							
OC F2	1700	4	308	1230	470	1	308
JH R 2	2030	2	455	910	1120	2	910
JO S1	680	1	310	310	370	1	310
JR C1	6200	14	367	5140	1120	3	1101
JR F2	2730	3	593	1660	1070	4	1070
JR S1	6530	11	534	5880	650	1	534
KJ R1	6000	10	315	3150	2850	9	2835
KJ V5	3200	3	857	2570	630	1	630
KS R1	5420	7	371	2600	2820	7	2597
KV V5	2600	4	482	1930	670	1	482
MD V1	4650	5	642	3210	1440	2	1284
PN W1	1200	3	308	925	275	1	275
H 30 G2	820	1	530	530	290	1	290
						23	12626
<u>Grand Isle 47</u>							
KS B1	3200	7	306	2145	1055	3	918
Totals						243	115081

Estimated Well Costs at \$1,250,000/Well = \$303,750,000
Estimated Costs per Additional Barrels Per Day of MPR: \$2639

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The Federal Energy Administration's life expires June 30. The House has voted to extend the FEA until Dec. 31, 1977, and the Senate yesterday (Sept. 28, 1977) would be better. A House-Senate conference committee will pick a final date. But the conference' job was vastly complicated by some important amendments added by the Senate before it passed, 91 to 82. The amendments on file:

—Remove existing federal price controls from oil produced by "stripper" wells, those producing not more than 10 barrels a day. Stripper wells account for 17% of U.S. oil output. This oil currently comes under an \$11.25-a-barrel price lid.

—Decentralize the price of any extra oil produced by flooding old wells with water and chemicals. A \$1.25-a-barrel price lid would remain for "old" oil produced by natural pressure or pumping, but there wouldn't be any ceiling on additional oil brought out by special recovery methods.

—Provide federal loan guarantees totaling up to \$4 billion for businesses that want to insulate their factories or install other energy-conserving devices.

—Let the Small Business Administration make partial repayment of private loans obtained by small businesses for buying energy-saving equipment.

—Authorize direct or loan subsidies to homeowners who install storm windows and other kinds of insulation. The subsidies would be in addition to insulation tax credits contained in the tax bill being debated by the Senate.

—Provide \$200 million in grants to states over a three-year period for installing free insulation in homes of low-income residents.

—Provide an additional \$125 million of grants over three years to states to devise energy-conservation programs.

—Enforce proposed new energy-saving building codes by forbidding federally supervised banks and savings and loan associations to make construction loans in communities that refuse to adopt them.

—Establish a CFEA a new fact-finding office with power to require major energy companies to submit data on costs, profits, cash flow and investments.

The House bill extending the FEA's life contains none of this. The conferees will decide which of the Senate's additions would be acceptable to the House, a painstaking process that might last past the 30 deadline. If it appears the deadline be missed, a new bill putting the conferees back three months or so might be quickly enacted to give the conferees more

on. Edward Kennedy (D., Mass.) and others who think the government ought to do more to promote energy conservation used routine FEA bill to rescue conservation goals that had bogged down. Both the House and Senate have already passed Ford administration-supported bills providing insulation for low-income residents. But legislation a stylized in a House-Senate conferees committee over the enforcement of new energy-saving building codes.

The administration favors the "white" requirement for a private construction cutoff in communities that don't adopt building codes to be devised by the Department of Housing and Urban Development.

The House passed a bill, doesn't include this enforcement feature, and the House conferees are halting at it. By reopening it as an amendment to the FEA bill, the Senate, in effect, sent the enforcement plan to a different group of conferees. As before, Sen. John Orr (R., Utah) protested that the credit

ment account balance, which includes the balance of trade in both goods and services plus such "disfederal transfers" as foreign-aid grants and government pensions to Americans residing abroad.

U.S. Sets First Sale Of Oil, Gas Leases In Atlantic Aug. 17

By WALL STREET JOURNAL Staff Reporter
WASHINGTON — The Interior Department set Aug. 17 for the first federal oil and gas lease sale off the Atlantic Coast but postponed sales of two other Atlantic tracts until 1977.

About 600,000 acres off New Jersey and Delaware will be offered for lease to oil companies for exploration and development. Interior Secretary Thomas Kleppe said he expects industry to snap up most of the tracts, and at higher bids than those offered for other unfamiliar areas off Alaska, and California.

Mr. Kleppe said he is postponing the sale of leases off New England and Georgia to allow more time for talks with officials of affected states. The department, he said, wants to avoid court challenges similar to one filed by California officials last year to block a sale off that state's coast. More environmental and scientific studies also are needed, Mr. Kleppe said.

So far, the department has leased 328, 318,000 acres this year offshore in the Gulf of Alaska and the Gulf of Mexico. The Atlantic sale in August will be only the third offshore sale of the government's program to increase domestic oil and gas supplies by tapping new offshore fields.

Mr. Kleppe also raised the possibility that the U.S. may trade Alaskan oil to Japan or another Far East nation if the Western U.S. is unable to absorb all the oil that is expected to start arriving when the Alaska pipeline opens next year.

He said the Alaskan oil could be traded on a "gallon-for-gallon" basis, with the Japanese supplying oil from a third country, such as Indonesia. Indonesian crude is low in sulphur and could be processed by California refineries, which generally are unable to process high-sulphur crude, such as that in Alaska, he said.

Ford administration energy officials are concerned that the long-sought Alaskan North Slope oil production may cause an unexpected surplus of crude oil on the West Coast by 1978. Officials are studying several ways to solve that problem, including piping the Alaskan oil from the West Coast to refineries in the Midwest or Texas. The law authorizing construction of the Alaska pipeline forbids sale of the oil overseas unless the President determines it's in the national interest and Congress doesn't disapprove. The prohibition doesn't apply to swapping the oil, however, and Mr. Kleppe said trading to Japan is one possible way to solve the problem.

The Federal Energy Administration has been studying various proposals for distributing the surplus Alaskan oil.

FEA Asks Decontrol Of Kerosine, Diesel, Home Heating Fuel

Energy Department Report indicated that the U.S. oil and coal output in the first quarter was \$1.51 billion, a bit smaller than the \$1.53 billion output in the previous quarter. The capital inflow was \$1.28 billion, down from \$1.74 billion the previous quarter.

Peerless Manufacturing Co. For \$7.8 Million Europe Job

DALLAS — Peerless Manufacturing Co. said it received a letter of intent from Mannesmann Export of Düsseldorf, West Germany, to supply gas-scrubbing equipment for a major gas pipeline planned in Europe. The offer is subject to receipt of a formal purchase order, which is expected within the next few weeks, Peerless said.

If a order would reverse a drop in orders and would be the largest Peerless has ever received, the company said. Shipments are expected to begin next April and to continue through October 1978. Construction would be in Peerless's Dallas plant.

The order would reverse a drop in orders for Peerless during the past 12 months, the company said.

Venezuela to Boost Its Average Price For Oil on July 1

CARACAS (AP) — The average selling price of Venezuelan oil, currently \$11.04 a barrel, will be increased between five and 10 cents a barrel July 1, Hernandez Anzures, acting minister of hydrocarbons, said.

Venezuela has boosted its average selling price several times since it. All industry was nationalized Jan. 1. The price was an average \$10.97 a barrel in January.

Mr. Anzures said the latest boost includes an increase of between 10 and 15 cents a barrel for medium-gravity crudes and a rise of 25 to 27 cents a barrel for high-sulphur residual fuel oils.

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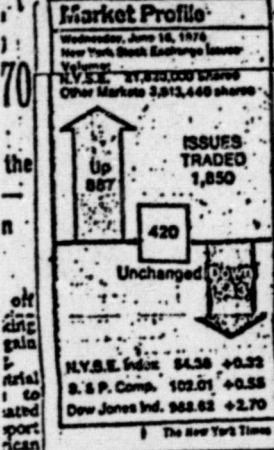
Price Controls Ended
WASHINGTON, June 16 (AP)—The Federal Energy Administration today announced the end of price controls on oil and gas.
An F.E.A. statement said the move, which would take effect unless Congress objects within 15 days, would not increase consumer fuel prices and might even lead to their reduction.

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U.S. Will Head
By RICHARD WIT
The head of the Federal Administration yesterday said that the States would follow Concorde program by ing a second-generation aircraft, probably the office with the Euro also said, John L. I that Con prospects projected progress would reducing legislation for next six aircraft noise presumably 10 years. It placing may be done by the engine jets and a raucous sn of some e Final detainer airline delayed arrival of the thrashed off noise bill of various out by represent agent interested Secretary aces. Trans Jr. hopes William T. completed to put for Finan proposal ne



Sale of Offshore Leases For Oil Drilling Start

WASHINGTON, June 16—The first lease sales to United States companies of rights to drill for oil and gas off the Atlantic coastline have been scheduled for Aug. 17 in New York City, Interior Secretary Thomas S. Kleppe said today.
The lease sales will involve about 878,750 acres of seabottom off the coast between Rehoboth Beach, Del., and Towns River, N.J., which is about 50 miles north of Atlantic City. The closest areas to shore will be around 47 miles and will stretch outwards to about 92 miles.
On another controversial issue, Mr. Kleppe raised the possibility that Alaskan oil might have to be sold to Japan in late 1977.
Mr. Kleppe, in a background briefing today with reporters, said, "It looked like the bids for the leases would be interesting and on the upside," he said. The start of drilling would be the first in the Atlantic, which is a "new frontier" area for energy resources.
Mr. Kleppe also reported that two other areas in the Atlantic—George's Bank off New England and the Southeast Georgia embayment, which have also been scheduled for lease sales this year, have been postponed until some time in 1977. He attributed the postponement to the necessary environmental and scientific studies still remaining to be done. These areas were also scheduled to be leased sometime this year.
The Interior spokesman said

the lands in the middle Atlantic offshore area would be offered for sale in early July and that Aug. 17, was the date the bids would be opened. The department then will choose specific oil companies to do the drilling.
Interest Shown
All of the nation's top oil companies have shown interest in beginning to drill off the New Jersey and Delaware coasts, an area geographically known as the Baltimore Canyon.
Although the areas involved in the new drilling are off important resort areas, there has not been much dissent from the states. There has been some opposition from environmental groups but no suits are pending as yet.
In the sale of oil of Japan, Mr. Kleppe said, any sales would be in the nature of "exchanges," meaning the oil would go to Japan in exchange for Indonesian oil.
The reason for the possible overseas sale is basically that the Alaskan pipeline, which is carrying oil from the North Slope in the Arctic to southern Alaska for planned shipment by tanker to the West Coast is going to the wrong place.
Any sale of Alaskan oil overseas would require Congressional approval. The law enabling of the controversial Alaskan pipeline specifically prohibited exports of the oil that is supposed to help the United States solve its energy crisis.

Continued on Page 51, Column 4

Huge Share Offer By A.T. & T. Sold Out

By STEVE RATNER
The American Telephone and Telegraph Company yesterday successfully sold 12 million shares of its common stock, valued at \$853 million, in the largest stock offer in American history.
"From what we can see this issue appears to be oversubscribed," said a Morgan Stanley & Company spokesman, which coordinated a network of more than 300 brokerage firms involved in the sale. "There was very, very strong demand all day long."
The stock was sold at \$44 1/2, which was also A. T. & T.'s closing price for the day.
Large stock offerings are not unknown to the nation's second

2 Biggest U.S. Banks Shun Soviet Loan

A \$250 million Eurodollar borrowing by the Soviet Union was virtually completed yesterday with the two largest United States commercial banks deciding not to participate.
Bankers Trust International, a London-based bank wholly owned by Citicorp, and Trust New York Corporation, has arranged syndication for about \$225 million of the loan, a spokesman said yesterday.
He added that the balance was expected to be spoken for next week. The loan, to the Foreign Trade Bank of the Soviet Union, is being made at an interest rate of 7 1/2 percent.
The Bank of America and Citicorp have decided not to participate, spokesmen confirmed.

Continued on Page 53, Column 4

Spain Is Seeking Credits to Spur Its Lagging Economy

By HENRY GINGER
MADRID, June 16—Spain has begun an effort to contract economic advantages from the political good will that has accompanied its preliminary moves toward democratic institutions.
A week after the visit of King Juan Carlos to Washington and New York, his Minister of Finance, Juan Miguel Villar Mir, has undertaken

well as some private American investment in Spain.
Simultaneously, a group of 10 West German industrialists are in Madrid studying investment possibilities. To be in the West Germans and the Americans, both already heavy investors, Spain is offering financial advantages and a friendly political climate with the promise that both will be maintained under the new regime that is now in the making.

slow growth are threatening to undermine both the political transformation and the social peace that Juan Carlos pledged in his address to Congress.
Despite some signs of recovery from last year, the worst in 20 years in terms of economic growth, according to Mr. Villar Mir, pessimism is still strong here. The minister has predicted an increase in the gross national product of 3 to 4 percent this year compared with the stag-



are not Italian." And he told me, "No, I am not Italian, but I was born in Rome."

Mr. President, I am not going to talk politics. The political orientations which inspire you and which are based on a very moral conception of public life, however, are something for which all free men and the entire world should be grateful to you. And in the difficult road which leads us to peace and to a better standard of living for all the humble people in all nations, your leadership is certainly a decisive factor in order to achieve victories in this very hard struggle.

I would like to say two small things. First of all, I would like to present my respects to Mrs. Luce, who was the Ambassador of your country in Rome. She was very much respected and loved, and she was very good at understanding our country, and she had much affection for Italy, and, I must say, this affection is still today very largely reciprocated.

Then, Mr. President, I am very grateful to you and Mrs. Nixon for inviting Frank Sinatra. I am going to be able to listen to him singing here. This is something which will give much prestige to me with my children. [Laughter]

And lastly, let me use one symbol which was offered to me. The prophet Isaiah said you should change your swords into plows. Now Secretary Rogers changed swords into harps, since at lunch I saw an Army Sergeant playing the harp. President Nixon changes swords into violins and cellos, because we saw military men playing violins and cellos, so let me hold this as a symbol for a better future in which we will have better men and peace.

And in this spirit, Mr. President, may I raise my glass to your health, to the well being of Mrs. Nixon, and to the greatness and prosperity of the American people.

NOTE: The President spoke at 9:49 p.m. in the State Dining Room at the White House. Prime Minister Andreotti spoke in Italian and his remarks were translated by an interpreter.

ENERGY POLICY

The President's Message to the Congress Announcing Executive Actions and Proposing Enactment of Bills To Provide for Energy Needs. April 18, 1973

To the Congress of the United States:

At home and abroad, America is in a time of transition. Old problems are yielding to new initiatives, but in their place new problems are arising which once again challenge our ingenuity and require vigorous action. Nowhere is this more clearly true than in the field of energy.

As America has become more prosperous and more heavily industrialized, our demands for energy have soared. Today, with 6 percent of the world's population, we consume almost a third of all the energy used in the world. Our energy demands have grown so rapidly that they now outstrip our available supplies, and at our present rate of growth, our energy needs a dozen years from now will be nearly double what they were in 1970.

In the years immediately ahead, we must face up to the possibility of occasional energy shortages and some increase in energy prices.

Clearly, we are facing a vitally important energy challenge. If present trends continue unchecked, we could face a genuine energy crisis. But that crisis can and should be averted, for we have the capacity and the resources to meet our energy needs if only we take the proper steps—and take them now.

More than half the world's total reserves of coal are located within the United States. This resource alone would be enough to provide for our energy needs for well over a century. We have potential resources of billions of barrels of recoverable oil, similar quantities of shale oil and more than 2,000 trillion cubic feet of natural gas. Properly managed, and with more attention on the part of consumers to the conservation of energy, these supplies can last for as long as our economy depends on conventional fuels.

In addition to natural fuels, we can draw upon hydroelectric plants and increasing numbers of nuclear powered facilities. Moreover, long before our present energy sources are exhausted, America's vast capabilities in research and development can provide us with new, clean and virtually unlimited sources of power.

Thus we should not be misled into pessimistic predictions of an energy disaster. But neither should we be lulled into a false sense of security. We must examine our circumstances realistically, carefully weigh the alternatives—and then move forward decisively.

WEIGHING THE ALTERNATIVES

Over 30 percent of the energy we consume today in the United States comes from three sources: natural gas, coal and petroleum. Each source presents us with a different set of problems.

Natural gas is our cleanest fuel and is most preferred in order to protect our environment, but ill-considered regulations of natural gas prices by the Federal Government have produced a serious and increasing scarcity of this fuel.

We have vast quantities of coal, but the extraction and use of coal have presented such persistent environmental problems that, today, less than 20 percent of our energy needs are met by coal and the health of the entire coal industry is seriously threatened.

Our third conventional resource is oil, but domestic production of available oil is no longer able to keep pace with demands.

In determining how we should expand and develop these resources, along with others such as nuclear power, we must take into account not only our economic goals, but also our environmental goals and our national security goals. Each of these areas is profoundly affected by our decisions concerning energy.

If we are to maintain the vigor of our economy, the health of our environment, and the security of our energy resources, it is essential that we strike the right balance among these priorities.

The choices are difficult, but we cannot refuse to act because of this. We cannot stand still simply because it is difficult to go forward. That is the one choice Americans must never make.

The energy challenge is one of the great opportunities of our time. We have already begun to meet that challenge, and realize its opportunities.

NATIONAL ENERGY POLICY

In 1971, I sent to the Congress the first message on energy policies ever submitted by an American President. In that message I proposed a number of specific steps to meet our projected needs by increasing our supply of clean energy in America.

Those steps included expanded research and development to obtain more clean energy, increased availability of energy resources located on Federal lands, increased efforts in the development of nuclear power, and a new Federal organization to plan and manage our energy programs.

In the twenty-two months since I submitted that message, America's energy research and development efforts have been expanded by 50 percent.

3405

In order to increase domestic production of conventional fuels, sales of oil and gas leases on the Outer Continental Shelf have been increased. Federal and State standards to protect the marine environment in which these leases are located are being tightened. We have developed a more rigorous surveillance capability and an improved ability to prevent and clean up oil spills.

We are planning to proceed with the development of oil shale and geothermal energy sources on Federal lands, so long as an evaluation now underway shows that our environment can be adequately protected.

We have also taken new steps to expand our uranium enrichment capacity for the production of fuels for nuclear power plants, to standardize nuclear power plant designs, and to ensure the continuation of an already enviable safety record.

We have issued new standards and guidelines, and have taken other actions to increase and encourage better conservation of energy.

In short, we have made a strong beginning in our effort to ensure that America will always have the power needed to fuel its prosperity. But what we have accomplished is only a beginning.

Now we must build on our increased knowledge, and on the accomplishments of the past twenty-two months, to develop a more comprehensive, integrated national energy policy. To carry out this policy we must:

- increase domestic production of all forms of energy;
- act to conserve energy more effectively;
- strive to meet our energy needs at the lowest cost consistent with the protection of both our national security and our natural environment;
- reduce excessive regulatory and administrative impediments which have delayed or prevented construction of energy-producing facilities;
- act in concert with other nations to conduct research in the energy field and to find ways to prevent serious shortages; and
- apply our vast scientific and technological capacities—both public and private—so we can utilize our current energy resources more wisely and develop new sources and new forms of energy.

The actions I am announcing today and the proposals I am submitting to the Congress are designed to achieve these objectives. They reflect the fact that we are in a period of transition, in which we must work to avoid or at least minimize short-term supply shortages, while we act to expand and develop our domestic supplies in order to meet long-term energy needs.

We should not suppose this transition period will be easy. The task ahead will require the concerted and cooperative efforts of consumers, industry, and government.

DEVELOPING OUR DOMESTIC ENERGY RESOURCES

The effort to increase domestic energy production in a manner consistent with our economic, environmental and security interests should focus on the following areas:

Natural Gas

Natural gas is America's premium fuel. It is clean-burning and thus has the least detrimental effect on our environment.

Since 1966, our consumption of natural gas has increased by over one-third, so that today natural gas comprises 32 percent of the total energy we consume from all sources. During this same period, our proven and available reserves of natural gas have decreased by a fifth. Unless we act responsibly, we will soon encounter increasing shortages of this vital fuel.

Yet the problem of shortages results less from inadequate resources than from ill-conceived regulation. Natural gas is the fuel most heavily regulated by the Federal Government—through the Federal Power Commission. Not only are the operations of interstate natural gas pipelines regulated, as was originally and properly intended by the Congress, but the price of the natural gas supplied to these pipelines by thousands of independent producers has also been regulated.

For more than a decade the prices of natural gas supplied to pipelines under this extended regulation have been kept artificially low. As a result, demand has been artificially stimulated, but the exploration and development required to provide new supplies to satisfy this increasing demand have been allowed to wither. This form of government regulation has contributed heavily to the shortages we have experienced, and to the greater scarcity we now anticipate.

As a result of its low regulated price, more than 50 percent of our natural gas is consumed by industrial users and utilities, many of which might otherwise be using coal or oil. While homeowners are being forced to turn away from natural gas and toward more expensive fuels, unnecessarily large quantities of natural gas are being used by industry.

Furthermore, because prices within producing States are often higher than the interstate prices established by the Federal Power Commission, most newly discovered and newly produced natural gas does not enter interstate pipelines. Potential consumers in non-producing States thus suffer the worst shortages. While the Federal Power Commission has tried to alleviate these problems, the regulatory framework and attendant judicial constraints inhibit the ability of the Commission to respond adequately.

It is clear that the price paid to producers for natural gas in interstate trade must increase if there is to be the needed incentive for increasing supply and reducing inefficient usage. Some have suggested additional regulation to provide new incentives, but we have already seen the pitfalls in this approach. We must regulate less, not more. At the same time, we cannot remove all natural gas regulations without greatly inflating the price of gas currently in production and generating windfall profits.

To resolve this issue, I am proposing that gas from new wells, gas newly-dedicated to interstate markets, and the continuing production of natural gas from expired contracts should no longer be subject to price regulation at the wellhead. Enactment of this legislation should stimulate new exploration and development. At the same time, because increased prices on new unregulated gas would be averaged in with the prices for gas that is still regulated, the consumer should be protected against precipitous cost increases.

To add further consumer protection against unjustified price increases, I propose that the Secretary of the Interior be given authority to impose a ceiling on the price of natural gas when circumstances warrant. Before exercising this power, the Secretary would consider the cost of alternative domestic fuels, taking into account the superiority of natural gas from an environmental standpoint. He would also consider the importance of encouraging production and more efficient use of natural gas.

Outer Continental Shelf

Approximately half of the oil and gas resources in this country are located on public lands, primarily on the Outer Continental Shelf (OCS). The speed at which we can increase our domestic energy production will depend in large measure on how rapidly these resources can be developed.

Since 1954, the Department of the Interior has leased to private developers almost 8 million acres on the Outer Continental Shelf. But this is only a small percentage of these potentially productive areas. At a time when we are being forced to obtain almost 30 percent of our oil from foreign sources, this level of development is not adequate.

I am therefore directing the Secretary of the Interior to take steps which would triple the annual acreage leased on the Outer Continental Shelf by 1979, beginning with expanded sales in 1974 in the Gulf of Mexico and including areas beyond 200 meters in depth under conditions consistent with my oceans policy statement of May, 1970. By 1985, this accelerated leasing rate could increase annual energy production by an estimated 1.5 billion barrels of oil (approximately 16 percent of our projected oil requirements in that year), and 5 trillion cubic feet of natural gas (approximately 20 percent of expected demand for natural gas that year).

In the past, a central concern in bringing these particular resources into production has been the threat of environmental damage. Today, new techniques, new regulations and standards, and new surveillance capabilities enable us to reduce and control environmental dangers substantially. We should now take advantage of this progress. The resources under the Shelf, and on all our public lands, belong to all Americans, and the critical needs of all Americans for new energy supplies require that we develop them.

If at any time it is determined that exploration and development of a specific shelf area can only proceed with inadequate protection of the environment, we will not commence or continue operation. This policy was reflected in the suspension of 35 leases in the Santa Barbara Channel in 1971. We are continuing the Santa Barbara suspensions, and I again request that the Congress pass legislation that would provide for appropriate settlement for those who are forced to relinquish their leases in the area.

At the same time, I am directing the Secretary of the Interior to proceed with leasing the Outer Continental Shelf beyond the Channel Islands of California if the reviews now underway show that the environmental risks are acceptable.

I am also asking the Chairman of the Council on Environmental Quality to work with the Environmental Protection Agency, in consultation with the National Academy of Sciences and appropriate Federal

3408

agencies to study the environmental impact of oil and gas production on the Atlantic Outer Continental Shelf and in the Gulf of Alaska. No drilling will be undertaken in these areas until its environmental impact is determined. Governors, legislators and citizens of these areas will be consulted in this process.

Finally, I am asking the Secretary of the Interior to develop a long-term leasing program for *all* energy resources on public lands, based on a thorough analysis of the Nation's energy, environmental, and economic objectives.

Alaskan Pipeline

Another important source of domestic oil exists on the North Slope of Alaska. Although private industry stands ready to develop these reserves and the Federal Government has spent large sums on environmental analyses, this project is still being delayed. This delay is not related to any adverse judicial findings concerning environmental impact, but rather to an outmoded legal restriction regarding the width of the right of way for the proposed pipeline.

At a time when we are importing growing quantities of oil at great detriment to our balance of payments, and at a time when we are also experiencing significant oil shortages, we clearly need the two million barrels a day which the North Slope could provide—a supply equal to fully one-third of our present import levels.

In recent weeks I have proposed legislation to the Congress which would remove the present restriction on the pipeline. I appeal to the Congress to act swiftly on this matter so that we can begin construction of the pipeline with all possible speed.

I oppose any further delay in order to restudy the advisability of building the pipeline through Canada. Our interest in rapidly increasing our supply of oil is best served by an Alaskan pipeline. It could be completed much more quickly than a Canadian pipeline; its entire capacity would be used to carry domestically owned oil to American markets where it is needed; and construction of an Alaskan pipeline would create a significant number of American jobs both in Alaska and in the maritime industry.

Shale Oil

Recoverable deposits of shale oil in the continental United States are estimated at some 600 billion barrels, 80 billion of which are considered easily accessible.

At the time of my Energy Message of 1971, I requested the Secretary of the Interior to develop an oil shale leasing program on a pilot basis and to provide me with a thorough evaluation of the environmental impact of such a program. The Secretary has prepared this pilot project and expects to have a final environmental impact statement soon. If the environmental risks are acceptable, we will proceed with the program.

To date there has been no commercial production of shale oil in the United States. Our pilot program will provide us with valuable experience in using various operational techniques and acting under various environmental conditions. Under the proposed program, the costs both of development and environmental protection would be borne by the private lessee.

Geothermal Leases

At the time of my earlier Energy Message, I also directed the Department of the Interior to prepare a leasing program for the development of geothermal energy on Federal lands. The regulations and final environmental analysis for such a program should be completed by late spring of this year.

If the analysis indicates that we can proceed in an environmentally acceptable manner, I expect leasing of geothermal fields on Federal lands to begin soon thereafter.

The use of geothermal energy could be of significant importance to many of our western areas, and by supplying a part of the western energy demand, could release other energy resources that would otherwise have to be used. Today, for instance, power from the Geysers geothermal field in California furnishes about one-third of the electric power of the city of San Francisco.

New technologies in locating and producing geothermal energy are now under development. During the coming fiscal year, the National Science Foundation and the Geological Survey will intensify their research and development efforts in this field.

Coal

Coal is our most abundant and least costly domestic source of energy. Nevertheless, at a time when energy shortages loom on the horizon, coal provides less than 20 percent of our energy demands, and there is serious danger that its use will be reduced even further. If this reduction occurs, we would have to increase our oil imports rapidly, with all the trade and security problems this would entail.

Production of coal has been limited not only by competition from natural gas—a competition which has been artificially induced by Federal price regulation—but also by emerging environmental concerns and mine health and safety requirements. In order to meet environmental standards, utilities have shifted to natural gas and imported low-sulphur fuel oil. The problem is compounded by the fact that some low-sulphur coal resources are not being developed because of uncertainty about Federal and State mining regulations.

I urge that highest national priority be given to expanded development and utilization of our coal resources. Present and potential users who are able to choose among energy sources should consider the national interest as they make their choice. Each decision against coal increases petroleum or gas consumption, compromising our national self-sufficiency and raising the cost of meeting our energy needs.

In my State of the Union Message on Natural Resources and the Environment earlier this year, I called for strong legislation to protect the environment from abuse caused by mining. I now repeat that call. Until the coal industry knows the mining rules under which it will have to operate, our vast reserves of low-sulphur coal will not be developed as rapidly as they should be and the under-utilization of such coal will persist.

The Clean Air Act of 1970, as amended, requires that primary air quality standards—those related to health—must be met by 1975, while more stringent secondary standards—those related to the "general well-

3409

very effectively to meet primary standards established by the Clean Air Act, and I am encouraged by their efforts.

At the same time, our concern for the "general welfare" or national interest should take into account considerations of national security and economic prosperity, as well as our environment.

If we insisted upon meeting both primary and secondary clean air standards by 1975, we could prevent the use of up to 155 million tons of coal per year. This would force an increase in demand for oil of 1.6 million barrels per day. This oil would have to be imported, with an adverse effect on our balance of payments of some \$1.5 billion or more a year. Such a development would also threaten the loss of an estimated 26,000 coal mining jobs.

If, on the other hand, we carry out the provisions of the Clean Air Act in a judicious manner, carefully meeting the primary, health-related standards, but not moving in a precipitous way toward meeting the secondary standards, then we should be able to use virtually all of that coal which would otherwise go unused.

The Environmental Protection Agency has indicated that the reasonable time allowed by the Clean Air Act for meeting secondary standards could extend beyond 1975. Last year, the Administrator of the Environmental Protection Agency sent to all State governors a letter explaining that during the current period of shortages in low-sulphur fuel, the States should not require the burning of such fuels except where necessary to meet the primary standards for the protection of health. This action by the States should permit the desirable substitution of coal for low-sulphur fuel in many instances. I strongly support this policy.

Many State regulatory commissions permit their State utilities to pass on increased fuel costs to the consumer in the form of higher rates, but there are sometimes lags in allowing the costs of environmental control equipment to be passed on in a similar way. Such lags discourage the use of environmental control technology and encourage the use of low-sulphur fuels, most of which are imported.

To increase the incentive for using new environmental technology, I urge all State utility commissions to ensure that utilities receive a rapid and fair return on pollution control equipment, including stack gas cleaning devices and coal gasification processes.

As an additional measure to increase the production and use of coal, I am directing that a new reporting system on national coal production be instituted within the Department of the Interior, and I am asking the Federal Power Commission for regular reports on the use of coal by utilities.

I am also stepping up our spending for research and development in coal, with special emphasis on technology for sulphur removal and the development of low-cost, clean-burning forms of coal.

Nuclear Energy

Although our greatest dependence for energy until now has been on fossil fuels such as coal and oil, we must not and we need not continue this heavy reliance in the future. The major alternative to fossil fuel energy for the remainder of this century is nuclear energy.

3411

Our well-established nuclear technology already represents an indispensable source of energy for meeting present needs. At present there are 30 nuclear power plants in operation in the United States; of the new electrical generator capacity contracted for during 1972, 70 percent will be nuclear powered. By 1980, the amount of electricity generated by nuclear reactors will be equivalent to 1.25 billion barrels of oil, or 8 trillion cubic feet of gas. It is estimated that nuclear power will provide more than one-quarter of this country's electrical production by 1985, and over half by the year 2000.

Most nuclear power plants now in operation utilize light water reactors. In the near future, some will use high temperature gas-cooled reactors. These techniques will be supplemented during the next decade by the fast breeder reactor, which will bring about a 30-fold increase in the efficiency with which we utilize our domestic uranium resources. At present, development of the liquid metal fast breeder reactor is our highest priority target for nuclear research and development.

Nuclear power generation has an extraordinary safety record. There has never been a nuclear-related fatality in our civilian atomic energy program. We intend to maintain that record by increasing research and development in reactor safety.

The process of determining the safety and environmental acceptability of nuclear power plants is more vigorous and more open to public participation than for any comparable industrial enterprise. Every effort must be made by the Government and industry to protect public health and safety and to provide satisfactory answers to those with honest concerns about this source of power.

At the same time, we must seek to avoid unreasonable delays in developing nuclear power. They serve only to impose unnecessary costs and aggravate our energy shortages. It is discouraging to know that nuclear facilities capable of generating 27,000 megawatts of electric power which were expected to be operational by 1972 were not completed. To replace that generating capacity we would have to use the equivalent of one-third of the natural gas the country used for generating electricity in 1972. This situation must not continue.

In my first Energy Special Message in 1971, I proposed that utilities prepare and publish long-range plans for the siting of nuclear power plants and transmission lines. This legislation would provide a Federal-State framework for licensing individual plants on the basis of a full and balanced consideration of both environmental and energy needs. The Congress has not acted on that proposal. I am resubmitting that legislation this year with a number of new provisions to simplify licensing, including one to require that the Government act on all completed license applications within 18 months after they are received.

I would also emphasize that the private sector's role in future nuclear development must continue to grow. The Atomic Energy Commission is presently taking steps to provide greater amounts of enriched uranium fuel for the Nation's nuclear power plants. However, this expansion will not fully meet our needs in the 1980's; the Government now looks to private industry to provide the additional capacity that will be required.

nuclear technology is a national asset of inestimable value. It is essential that we press forward with its development.

The increasing occurrence of unnecessary delays in the development of energy facilities must be ended if we are to meet our energy needs. To be sure, reasonable safeguards must be vigorously maintained for protection of the public and of our environment. Full public participation and questioning must also be allowed as we decide where new energy facilities are to be built. We need to streamline our governmental procedures for licensing and inspections, reduce overlapping jurisdictions and eliminate confusion generated by the government.

To achieve these ends I am taking several steps. During the coming year we will examine various possibilities to assure that all public and private interests are impartially and expeditiously weighed in all government proceedings for permits, licensing and inspections.

I am again proposing siting legislation to the Congress for electric facilities and for the first time, for deepwater ports. All of my new siting legislation includes provision for simplified licensing at both Federal and State levels. It is vital that the Congress take prompt and favorable action on these proposals.

Encouraging Domestic Exploration

Our tax system now provides needed incentives for mineral exploration in the form of percentage depletion allowances and deductions for certain drilling expenses. These provisions do not, however, distinguish between exploration for new reserves and development of existing reserves.

In order to encourage increased exploration, I ask the Congress to extend the investment credit provisions of our present tax law so that a credit will be provided for all exploratory drilling for new oil and gas fields. Under this proposal, a somewhat higher credit would apply for successful exploratory wells than for unsuccessful ones, in order to put an additional premium on results.

The investment credit has proven itself a powerful stimulus to industrial activity. I expect it to be equally effective in the search for new reserves.

IMPORTING TO MEET OUR ENERGY NEEDS

Oil Imports

In order to avert a short-term fuel shortage and to keep fuel costs as low as possible, it will be necessary for us to increase fuel imports. At the same time, in order to reduce our long-term reliance on imports, we must encourage the exploration and development of our domestic oil and the construction of refineries to process it.

The present quota system for oil imports—the Mandatory Oil Import Program—was established at a time when we could produce more oil at home than we were using. By imposing quantitative restrictions on imports, the quota system restricted imports of foreign oil. It also encouraged the development of our domestic petroleum industry in the interest of national security.

Today, however, we are not producing as much oil as we are using, and we must import ever larger amounts to meet our needs.

3413

As a result, the current Mandatory Oil Import Program is of virtually no benefit any longer. Instead, it has the very real potential of aggravating our supply problems, and it denies us the flexibility we need to deal quickly and efficiently with our import requirements. General dissatisfaction with the program and the apparent need for change has led to uncertainty. Under these conditions, there can be little long-range investment planning for new drilling and refinery construction.

Effective today, I am removing by proclamation all existing tariffs on imported crude oil and products. Holders of import licenses will be able to import petroleum duty free. This action will help hold down the cost of energy to the American consumer.

Effective today, I am also suspending direct control over the quantity of crude oil and refined products which can be imported. In place of these controls, I am substituting a license-fee quota system.

Under the new system, present holders of import licenses may import petroleum exempt from fees up to the level of their 1973 quota allocations. For imports in excess of the 1973 level, a fee must be paid by the importer.

This system should achieve several objectives.

First, it should help to meet our immediate energy needs by encouraging importation of foreign oil at the lowest cost to consumers, while also providing incentives for exploration and development of our domestic resources to meet our long-term needs. There will be little paid in fees this year, although all exemptions from fees will be phased out over several years. By gradually increasing fees over the next two and one-half years to a maximum level of one-half cent per gallon for crude oil and one and one-half cents per gallon for all refined products, we should continue to meet our energy needs while encouraging industry to increase its domestic production.

Second, this system should encourage refinery construction in the United States, because the fees are higher for refined products than for crude oil. As an added incentive, crude oil in amounts up to three-fourths of new refining capacity may be imported without being subject to any fees. This special allowance will be available to an oil company during the first five years after it builds or expands its refining capacity.

Third, this system should provide the flexibility we must have to meet short and long-term needs efficiently. We will review the fee level periodically to ensure that we are imposing the lowest fees consistent with our intention to increase domestic production while keeping costs to the consumer at the lowest possible level. We will also make full use of the Oil Import Appeals Board to ensure that the needs of all elements of the petroleum industry are met, particularly those of independent operators who help to maintain market competition.

Fourth, the new system should contribute to our national security. Increased domestic production will leave us less dependent on foreign supplies. At the same time, we will adjust the fees in a manner designed to encourage, to the extent possible, the security of our foreign supplies. Finally, I am directing the Oil Policy Committee to examine incentives aimed at increasing our domestic storage capacity or shut-in production. In this way we will provide buffer stocks to insulate ourselves against a temporary loss of foreign supplies.

STATEMENT OF DR. KENNETH LAY, DEPUTY UNDER SECRETARY (ENERGY),
DEPARTMENT OF THE INTERIOR, BEFORE THE COUNCIL ON ENVIRONMENTAL
QUALITY'S "PUBLIC HEARINGS ON THE ENVIRONMENTAL IMPACT OF POTENTIAL
OIL AND GAS DEVELOPMENT ON THE ATLANTIC OUTER CONTINENTAL SHELF
AND IN THE GULF OF ALASKA," SEPTEMBER 12, 1973, WASHINGTON, D.C.

In his April 18, 1973 Energy Message to Congress, the President characterized the present energy situation as one of challenge:

"Clearly, we are facing a vitally important energy challenge. If present trends continue unchecked, we could face a genuine energy crisis. But that crisis can and should be averted, for we have the capacity and the resources to meet our energy needs if only we take the proper steps -- and take them now."

The United States does indeed face a tremendous energy challenge. More than three fourths of all the basic energy needs of the United States is satisfied by oil and natural gas. Since 1960, our consumption of oil and natural gas has increased by about 70 percent. Simultaneously, the number of oil and natural gas wells drilled in the United States has declined by 40 percent. Consequently, we have consumed twice as much natural gas over the last five years as we have found, and our production of oil peaked in 1972 and is now about 5 percent below that peak.

This has led to sharp increases in our dependency on foreign energy supplies. As recently as 1968, the United States imported less

than 3.0 MMb/d of oil, or about 21 percent of our needs.

Last year we imported 4.7 MMb/d of oil, or 29 percent of our total needs. This rate has further increased in the current year to 6.0 MMb/d, or about 33 percent of our needs. If present trends continue, by 1985 we could be importing from 13 to 19 MMb/d (Interior Department and National Petroleum Council forecasts attached), or between one half and two thirds of our total requirements, with an increasingly higher proportion of these imports coming from the Eastern hemisphere. The first round balance of payments outflow from these imports is estimated at from \$20 to \$30 billion per year, with no adjustments for possible future price increases for foreign oil.

The economic, foreign relations and national security implications of such heavy dependence on foreign energy supplies, and such large dollar outflows from the United States, are considerable. But of equal concern is the increasing possibility that we may not be able to obtain adequate supplies of foreign oil to satisfy our needs at any reasonable cost. Despite the recent sharp increases in imports, and the commensurately sharp increases in the prices for foreign oil, the United States has suffered its most serious energy shortages during the past year of any time since World War II. In the year ending this past March, the

 Nation's natural gas pipelines had to curtail service by about 1 trillion cubic feet, or about twice the amount curtailed in the previous year. This past winter, some schools and factories were unable to obtain adequate heating oil. This summer gasoline was, and currently is, in extremely short supply in parts of the Rocky Mountain area.

As we enter the winter of 1973-1974, the prospects are for a very tight heating oil situation. If the winter is abnormally cold, or if domestic refineries do not produce at maximum capacity, or if imports do not reach the extraordinarily high levels hoped for, a desperate situation for heating oil could result. Simultaneously some of the producing countries in the Middle East are saying they may not increase production, and their exports to us, as fast as we had hoped, and our largest single supplier of foreign oil, Canada, says it will reduce its exports to us in the near future.

I make these statements as way of introduction to accentuate the seriousness of these hearings, if such an accentuation is necessary. You will hear a great deal of testimony here today and tomorrow and at your other locations in the coming weeks about the energy situation. Some of this testimony will no doubt be excellent. Some with equal certainty will be overly simplistic and perhaps misleading. I would summarize our views on the energy situation as follows:

1. The United States energy problem is, for the most part, a very genuine and critical problem and not a contrived or temporary shortage as some would like to believe.
2. The United States energy problem has been developing for a long time, probably a decade or longer, and cannot be solved quickly, and perhaps not even in the next decade.
3. The United States energy problem will not be solved by a single action or program, such as more energy conservation or more solar research and development, but instead requires a concerted and conscientious effort on many fronts.
4. The only way to mitigate our growing dependence on foreign supplies and minimize shortages over the next decade or longer is to increase the production and use of our domestic fossil fuels, oil, gas and coal, while simultaneously working hard to increase energy efficiencies and reduce overall energy demand.
5. Approximately 40 percent of our remaining recoverable oil and natural gas resources in the United States is estimated to be under the Outer

~~continental~~ Shelf, and more than half of these recoverable resources is estimated to be under the Atlantic and Gulf of Alaska OCS.

In his Energy Messages of April 18 and June 29, the President announced a number of new programs to cope with the Nation's energy problems and to lessen the growing dependence on foreign oil imports. These included actions to reduce energy demand; to accelerate domestic production of oil, gas, coal and other energy sources; to expand R & D programs to develop clean synthetic fuels from coal and oil shale; to speed up development of the fast breeder reactor; and to accelerate research in the development of fusion, geothermal and solar energy. The President also announced abolition of the oil import quota program and, in its place, institution of a license-fee import program. This change, along with his requested legislation covering deepwater ports, should make it easier and more economical to obtain the necessary quantities of foreign oil over the next few years when there is no other alternative.

A key aspect of the President's program is an effort to conserve energy. The Federal government was ordered to reduce its energy consumption by 7 percent in the next 12 months. The States were requested to consider reducing highway speeds in order to conserve

fuel and the responsible Federal agencies were directed to work with the airlines to reduce flight speeds and frequencies. An Office of Energy Conservation has been established in the Department of the Interior which will develop energy conservation measures for the Federal government and the nation as a whole.

While energy conservation is essential in reducing the energy challenge, it alone cannot solve the problem. For will the much expanded energy R&D effort -- expected to total \$10 billion over the next 5 years -- be of any substantial help over the next few years. For the next decade or longer, we will either become more heavily dependent on imports, if they are available, or we will develop our domestic resources.

The President has decided that we must choose the latter course. We must more fully develop and utilize our domestic energy resources. A major element of his program to accomplish this goal is acceleration of the rate at which the highly productive Outer Continental Shelf (OCS) is leased. The President has directed the Secretary of Interior to triple the annual acreage leased on the OCS, increasing the acreage leased from 1 million acres last year to 3 million acres per year by no later than 1979. This accelerated leasing ~~rate~~ could increase annual energy production in 1985 by an estimated 1.5 billion barrels of oil (4.0 MMb/d) and 5 trillion cubic feet of natural gas.

 It is not known with full certainty how much oil and gas exists in the two areas under investigation by these hearings and it will not be known unless wells are drilled. However, the Geological Survey estimates that the Atlantic OCS out to 200 meters contains potential recoverable resources of 48 billion barrels of oil and 220 trillion cubic feet of gas. This compares with our total proved reserves in the United States, including the North Slope of Alaska, of 45 billion barrels of oil and 256 trillion cubic feet of gas. Additional potential resources in place may lie under the deeper waters beyond 200 meters. The Alaska OCS out to 200 meters is estimated to contain potential recoverable resources of 62 billion barrels of oil and 280 trillion cubic feet of gas.

On July 11, 1973, a revised proposed schedule calling for fifteen possible oil and gas lease sales in the next five years was issued by the Bureau of Land Management. This accelerated schedule is in response to the President's April 18 Energy Message. The schedule is a flexible planning document designed to provide early notice to all interested groups of the Department's proposed plans, and to afford these groups the maximum possible time to develop their views and become involved in the decision-making process. No final decision on whether to hold any of the individual sales listed will be made until completion of all necessary studies and public hearings. We believe this process to sound and, in

3461

view of our present energy and environmental challenge, that our careful and lengthy analytical and information-gathering processes are absolutely essential to fully support the often difficult multiple use decisions we must make.

In the past, as a result of our planning and study efforts, we have delayed planned sales, deleted tracts from lease sales, placed a moratorium on drilling, placed special stipulations on individual tracts, further strengthened existing regulations and operating orders, and completely withheld tracts from proposed offerings if our tract selection process has raised significant environmental questions. Attached is a copy of our revised OCS operating orders and environmental stipulations placed on certain tracts.

As you know, no sales have been identified on this schedule for the Atlantic or the Gulf of Alaska. The Department has been studying these areas for several years and is making every effort to provide the Council on Environmental Quality (CEQ) with the information we have gathered to date on the resources, the economy, the environment and other factors which might be affected by offshore oil and gas production in these areas.

We presently know that geologic hazards in the Gulf of Alaska are significant because of the frequency and magnitude of earthquakes which can cause sea floor shifting. On the Atlantic OCS, earthquakes (tremors) are present but occur infrequently. Sediment

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 slides on the continental slope adjacent to both OCS areas are possible. Additional geologic information is attached for the record. By comparison, sediment movement during hurricanes has damaged oil well casings in the Louisiana OCS, and earthquakes have caused damage to casings in the onshore areas of California.

However, proper engineering safeguards and practices mitigate damage from these hazards.

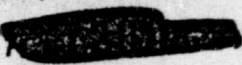
We will be moving ahead in the next few months to establish OCS offices with environmental assessment teams on the Pacific Coast (Los Angeles) and in Alaska (Anchorage). An environmental study office for the Atlantic OCS will also be established in New York City. The teams' functions will include acquiring necessary data and establishing liaison with state and local groups and universities to determine ongoing analytical efforts, which may be useful in examining the impact of offshore oil and gas leasing on the environment. We presently have an assessment team in our Gulf of Mexico OCS office (New Orleans) which has built up a liaison with a wide spectrum of government, academic and private organizations in the Gulf Coast area as well as provided valuable inputs into our overall OCS management efforts.

The Bureau of Land Management has awarded contracts to gather baseline socio-economic and environmental data for the Atlantic, Gulf of Alaska and Gulf of Mexico areas (additional material on the studies is attached). We will be providing CBQ with the results of

our North Atlantic contract study and other studies. These studies will help in the carrying out of the President's mandate to determine the effect of oil and gas production in the Atlantic and Gulf of Alaska. Efforts are also underway to initiate a joint BLM-CEQ contract study for the South Atlantic area.

If it is determined that development of the Atlantic and Gulf of Alaska can proceed in an environmentally satisfactory manner, proposed leasing actions in one or both areas will be considered. The question of who holds sovereign rights to the natural resources of the Atlantic OCS is still in litigation between the United States and the Atlantic coastal States. No action toward leasing can be undertaken until the Supreme Court decides the boundary issue or the States and the Federal government make interim arrangements for leasing pending the Supreme Court decision.

We would stress that at each step of our pre-leasing procedures, we constantly re-evaluate proposed leasing actions in light of developing environmental, geologic, economic and other technical information. Our procedures involve: (1) initial resource evaluations, (2) calls for nominations to assess industry's interest in specific areas, (3) individual tract selections, (4) draft environmental impact statements, (5) public hearings and (6) final environmental impact statements. At each step, modifications, special regulations and stipulations, and withdrawals


or delays can and have been made. In addition, when a sale is held, the Department maintains a comprehensive pre and post sale evaluation system which further evaluates and considers geologic, environmental and economic factors right up to the final determination as to whether or not individual leases shall be issued.

Once leases are issued, the Department closely supervises any actual exploration, development and production which may follow, including any related pipeline development.

Close coordination is involved in these steps between the Bureau of Land Management, the Geological Survey, the Fish and Wildlife Service and other Federal agencies. An example of this coordination has been the formation of the OCS Environmental Assessment Committee comprised of members from the various Bureaus having jurisdictional responsibilities related to OCS development. This committee advises the Assistant Secretary, Land and Water Resources, on ways to improve leasing or operating procedures affecting safety, pollution abatement and environmental considerations. The Committee studies each step of the leasing process and assists in the development of stipulations or special conditions which are applied to certain tracts located in or adjacent to critical environmental areas.

A memorandum of understanding has been formulated between the Bureau of Land Management, the Geological Survey and the Fish and Wildlife Service providing for close coordination and review

of all actions involved in the management of the OCS and other related activities. Formal agreements also exist between the Bureau of Land Management and the Geological Survey on tract selection and pre-sale evaluation procedures.

In addition to the Fish and Wildlife Service, considerable assistance in evaluating environmental effects is received from the Bureau of Outdoor Recreation and the National Park Service. The Fish and Wildlife Service provides biological expertise on conservation and management programs involving aquatic habitats. The Bureau of Outdoor Recreation provides financial and technical assistance to states and their subdivisions for developing and coordinating recreation programs, plans and projects and provides advice and technical assistance on matters affecting coastal zone management. The National Park Service, in its capacity as Manager of National Parks and Seashores, also advises on the use of the coastal zone. In addition, the National Park Service provides guidance in matters of cultural resource protection, particularly relating to archeological and historical discoveries.

Many actions have been taken to assure the safe conduct of OCS lease operations. In the two years following the Santa Barbara oil spill, OCS regulations and orders were extensively revised to define more clearly the responsibility of lessees and the authority of the Geological Survey's Area Supervisors to regulate

 operations; to exercise tight control over drilling, production, and waste disposal; and to require equipment fully adequate for the safe conduct of operations. Much stress has been placed on the development of redundancy -- i.e., "fail safe" devices and procedures that provide for safety when another device or procedure has failed. The regulations and orders are under constant review to insure they are up to date and consistent with the current technology. (Additional information on environmental safety procedures is attached.)

To provide assurance that these regulations and orders are fully observed, a comprehensive review system has been developed. All operators' work plans and proposed activities must be reviewed in advance and approved before work proceeds. Each operator is also required to develop and file a satisfactory pollution contingency plan. And, as part of the review process, proposed actions that may have a significant effect on the environment are carefully assessed. If it is determined that such an action may have a significant effect, an environmental statement is prepared following procedures under the National Environmental Policy Act.

A field inspection system has been instituted which not only helps to ensure compliance with regulations and orders, but provides information useful in identifying points of weakness in equipment or procedures and in the development of corrective measures.

During the last two years, three studies were undertaken, one by analysts from the National Aeronautics and Space Administration, another by a panel of the Marine Board of the National Academy of Engineering, and one by a systems analysis team of the Geological Survey -- to identify additional means of improving the safety of offshore operations. As a result of the recommendations of these groups, a failure-reporting and corrective-action system, an information exchange system, a means to assure better identification of research and development needs, and several other procedures and programs that will add to the collective ability to conduct offshore operations safely, are being developed.

In addition, a review committee on safety of OCS petroleum operations has been established to advise the Director of the Geological Survey, on policies and procedures related to safety, pollution control, and environmental protection. This group has been established under the auspices of the Marine Board of the National Academy of Engineering and is composed of experts in various engineering and scientific fields.

As a result of these more stringent requirements and more effective inspection techniques, the amount of oil spilled during routine production operation has been reduced by a third. (More data attached)

~~Conclusion~~ In conclusion, we are convinced that development of the oil and natural gas resources under the Outer Continental Shelf can proceed in an environmentally safe manner. The past record is impressive on this score. Through the year 1970, there were 19,000 wells drilled on the Outer Continental Shelf resulting in 25 blowouts and only 3 mishaps which caused significant pollution problems. Moreover, it appears likely that production of oil and natural gas on the Outer Continental Shelf is environmentally safer than other energy supply alternatives. Despite worldwide offshore production of about 3.3 billion barrels of oil per year, or about 18 percent of all oil produced, a recent study shows that offshore production accounts for only 2.1 percent of the total oil pollution on the oceans, while tankers and automobiles crankcases contribute 28.4 and 29.4 percent respectively.

We will continue to develop and monitor the large and vitally needed petroleum resources of our OCS in a wise, balanced and safe manner. The Department of the Interior will issue leases in the Atlantic and the Gulf of Alaska only if we are certain that such actions are compatible with our three public land leasing and management goals of orderly and timely resource development, protection of the environment, and receipt of fair market value. Within this framework, we hope to manage the OCS in a way best designed to meet our growing energy and environmental challenges in the months and years ahead.

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launched in July. Its introduction was staggered so that any price increases which followed the freeze would be spread over several months.

Phase IV was designed to provide a tough program of controls that would enable this country to return to the free market system as soon as possible. Since its introduction, Phase IV has made admirable progress toward reducing the dangers of inflation, demonstrating that the public and private sectors of our economy can work cooperatively and effectively together to enhance our Nation's economic future.

Unprecedented developments in all parts of the world have created extraordinary pressures on our economy. We can be proud, however, of the way in which we have

responded to these problems. We are proving that a dynamic and resilient people can meet the challenge of inflation without sacrificing the ideal of a free market system. If we continue our recent progress—and if we respond to new challenges, including the current energy shortage, with this same sense of poise and flexibility—then we can look forward with assurance to a prosperous New Year.

RICHARD NIXON 3429

The White House,
January 22, 1974.

NOTE: The report covering the period from July 1, 1973, through September 30, 1973, is entitled "Economic Stabilization Program Quarterly Report" (Government Printing Office, 94 pp.).

THE ENERGY CRISIS

The President's Message to the Congress Outlining Legislative Proposals and Executive Actions To Deal With the Crisis. January 23, 1974

To the Congress of the United States:

As the 93rd Congress reconvenes this week, it returns to an agenda that is piled high with vital legislative questions.

America is undergoing a period of rapid change and growth when decisions made in Washington could affect the patterns of our national life for the rest of this century. These decisions demand not only the collective wisdom of our national leadership but also a continuing spirit of cooperation between the executive and legislative branches of our Government. In this first legislative message of 1974, I want to renew my pledge that I stand ready and eager to work with the Members of the Congress in shaping the solutions that are best for America.

In the next few weeks, I will send to the Congress a series of messages requesting swift legislative action in the areas where I feel that progress is most keenly needed. In each of these areas—health, education, transportation, natural resources, and others—these proposals reflect the best efforts of my Administration to solve a wide range of difficult domestic problems.

No single legislative area is more critical or more challenging to us as a people, however, than the subject of this first message to the Congress: The energy crisis. It is because of its importance and because of the urgent need for action that I have chosen to break tradition, outlining to the Congress my legislative requests in energy before delivering my State of the Union Address.

I first warned of approaching energy shortages in a message to the Congress in 1971—the first energy message ever presented by an American President. In 1973, an embargo was suddenly imposed upon many of our foreign supplies of oil, the crisis broke upon us, and the entire country took the first steps toward coping with the emergency. We have made solid progress since then, but it is clear that our efforts in 1973 were just the beginning. As our first order of business in the new year, therefore, let us resolve that 1974 shall be the year that we build a permanent framework for overcoming the energy crisis.

3430

In the initial portion of this message, I want to report to the Congress on our progress over the last three months. The remainder of the message addresses the legislative program on which I am urging Congressional action in 1974:

—First, the proposals that I believe are essential to meet the short-term emergency, including:

- A special energy act that would permit restrictions on the private and public consumption of energy and would temporarily relax certain Clean Air Act requirements for power plants and automotive emissions;
- A windfall profits tax that would prevent private profiteering at the expense of public sacrifice;
- Unemployment insurance to help those who lose their jobs because of the energy crisis;
- And establishment of a Federal Energy Administration.

—Second, the legislative proposals that I have previously submitted in order to meet our long-range goal of achieving self-sufficiency in energy, including proposals that would:

- Allow market pricing of new natural gas;
- Allow temporary oil production from the Elk Hills Naval Petroleum Reserve in California;
- Permit surface mining of coal in a manner that is environmentally safe;
- Permit the development of new deepwater port facilities offshore;
- Amend the tax laws regarding drilling investments;
- Modernize the laws regarding mineral leasing on Federal lands;
- And reorganize the executive branch so that it may deal more effectively with energy and natural resource problems.

—Third, proposals which are designed to help us achieve self-sufficiency in energy and which I am submitting to the Congress this year for the first time, including proposals that would:

- Eliminate depletion allowances for foreign oil and gas production;
- Accelerate the licensing and construction of nuclear facilities;
- Require labeling of products for energy efficiency;
- And streamline the site selection process for energy facilities.

In addition to these legislative proposals, the Administration is moving forward this year with a series of executive actions and studies relating to our long-term energy needs. The latter are addressed in the last section of the message.

I. REPORT ON THE CURRENT EMERGENCY

Last year the United States consumed roughly 18 million barrels of petroleum, in one form or another, every day. This represented about one-half of our total energy consumption. The level of petroleum consumption was also rising, so that we expected demands to reach about 20 million barrels a day in 1974.

While the country is rich in natural resources, our production of petroleum resources is far less than our demands. Last year we were producing approximately 11 million barrels of petroleum a day, and the level of production was declining.

3431

The difference between our demands and our domestic consumption must be made up, of course, by imports from abroad, reductions in demand, or increased domestic production. Even before the embargo on oil in the Middle East, our foreign supplies were barely adequate. Since the embargo, the shortage has become a good deal more serious. The Federal Energy Office has estimated that during the first three months of 1974, our imports will fall short of our normal demands by 2.7 million barrels a day. If the embargo continues, shortages could exceed three million barrels a day during the rest of the year. That shortfall is the major factor in our current emergency.

Encouraging Progress

With the Nation confronting a severe energy shortage, I appealed to the public eleven weeks ago to undertake a major conservation effort on a personal, voluntary basis. My appeal was repeated by public servants across the land. The Congress acted quickly to pass laws putting the Nation on year-round daylight savings time and reducing the national highway speed limits to no more than 55 miles per hour. The Federal Government began moving swiftly to ensure that fuel supplies were allocated fairly and that conservation measures were undertaken within the Government. Most importantly, the people themselves responded positively, lowering the thermostats in their homes and offices, reducing their consumption of gasoline, cutting back on unnecessary lighting, and taking a number of other steps to save fuel.

Largely because of the favorable public response, I can report to the Congress today that we are making significant progress in conserving energy:

—Total consumption of gasoline in the United States during the month of December was nearly nine percent below expectations.

—Consumption of home heating oil has been reduced. A recent survey of 19,000 homes in New England showed they had reduced heating oil consumption by more than 16 percent under last year, after making adjustments for warmer weather.

—Utilities report that consumption of natural gas across the country has been reduced by approximately 6 percent over last year, while the consumption of electricity is down about 10 percent.

Beyond the progress we have made because of voluntary conservation, we have also been fortunate in two other respects. The weather in the last quarter of 1973 was warmer than usual, so that we did not consume as much fuel for heating as we expected. In addition, the oil embargo in the Middle East has not yet been totally effective, allowing us to import more oil than we first anticipated.

Action at the Federal Level

The Federal Government clearly has a major responsibility in helping to overcome the energy crisis. To fulfill that responsibility, several steps have been taken in the last three months:

—A major conservation program has been established and has cut consumption of energy by Federal agencies by more than 20 percent below anticipated demands in the third quarter of 1973.

—A sweeping investigation of fuel prices charged at gasoline stations and truck stops has been launched, putting an end to price gouging wherever it is found.

—A Federal Energy Office has been created to serve as a focal point for energy actions taken by the Government.

—Finally, a fuel allocation program has been set up to assure that no area of the Nation is subjected to undue hardships and to assure that in allocating fuel, the protection of jobs comes ahead of the satisfaction of comforts. As part of this allocation effort, refiners are being encouraged to produce less gasoline and more of the products that are needed in homes and industry, such as heating oil, diesel oil, residual fuel oil, and petrochemical feed-stocks. The Cost of Living Council has issued regulations to encourage the shift away from gasoline production. If necessary, additional steps will be taken to encourage shifts in refinery production.

The allocation program now underway will mean some cutbacks in travel, heating and other end uses of fuel, while uses which keep our economy operating at a high level will be permitted to remain at or above last year's levels.

Market forces are also at work allocating fuel. Due primarily to large increases in prices for foreign oil, the price of gasoline has risen by 1. to 15 cents per gallon over last year. This obviously discourages the consumption of gasoline. Heating oil has also shown a comparable rise with similar effect.

There is a limit, however, to the amount of market allocation through higher prices which we will allow. We will not have consumers paying a dollar a gallon for gasoline. We must therefore seek to maximize the production of domestic oil at a price lower than the price of foreign oil. We will also carefully review requests for energy price increases, to ensure that they are genuinely needed.

All of the measures of conservation and allocation have greatly improved the Nation's chances of avoiding hardships this winter and gas rationing this spring. *Gas rationing, with its attendant bureaucracy and cost to the taxpayer, should be only a last resort.* Nevertheless, we are attempting to be prudent and therefore have developed a system of coupon rationing. The system is now on the record for public comment, and will be ready for use this spring should it prove necessary.

The system would provide for transferable coupons for all licensed drivers over 18 years old. The coupons, unlike the World War II coupons, would be freely transferable. Thus those who can economize and use less than their allotment would be given tangible incentive to do so, while those who seriously need larger amounts would be able to buy coupons legally.

The measures of allocation and conservation are, in the very short-run, the only actions which will have an effect in lessening the crisis. However, in the slightly longer term, we can and we are making efforts to increase domestic supplies of petroleum very rapidly.

Increases in supplies of domestic crude oil are necessary not only to assure supplies, but to keep the prices for consumers at a reasonable level. The prices charged by a foreign cartel for crude oil have risen so dramatically that U.S. oil prices are now greatly below the world market price.

To ensure that domestic oil exploration continues and grows, the

3433

from Economic Stabilization Act controls. Also, to compensate for increased production costs and to stimulate advanced techniques for recovering oil, we have permitted a \$1 per barrel increase in the cost of petroleum under existing oil contracts.

As a result, domestic oil wells that had been abandoned because they were no longer profitable are being put back into production, and new American oil is now beginning to come into the market. We anticipate additional increases in the oil in the future.

As a greater domestic production fills more of our oil needs, we will be demanding less foreign oil, and the price for foreign oil will not be driven upwards by our demands. Our own domestic production will tend to put a cap on the prices foreign suppliers may charge.

To deal further with the world shortage of oil and its increasingly unrealistic price levels, I have invited major consuming nations to a conference in Washington on February 11. The conference will, I hope, eventually lead to greater international cooperation in the areas of energy conservation, research, pricing policy, oil exploration, and monetary policy.

II. LEGISLATION TO MEET THE CURRENT EMERGENCY

Although we have made significant progress over the last three months in reducing consumer demands for energy and in allocating fuel supplies, additional legislative measures must be enacted if we are to maintain our momentum. I am therefore asking that the Congress give its highest priority to five proposals which I have previously recommended for dealing with the short-term emergency:

1. *Special Energy Act:*

The principal purposes of this legislation are to grant the executive branch authority to restrict the public and private consumption of energy and to modify certain Clean Air Act requirements.

During the closing weeks of December, both Houses of Congress labored long and hard on this emergency bill. As presently drafted in the House-Senate conference, the bill is laden with so many extraneous provisions that I would have difficulty signing it. I urge the Congress to pass a basic bill dealing with mandatory conservation, fuel conversion, rationing, and changes to the Clean Air Act. I would also urge that the extraneous provisions be placed in separate legislation where they belong.

2. *Windfall Profits Tax:*

The solution to the energy crisis must ultimately depend in large measure upon the response of the public, and their actions will in turn be based upon their recognition that an energy crisis actually exists and that it has not been contrived for the benefit of big business. For weeks, believing that the crisis is genuine, millions of Americans have made sacrifices in their comfort and convenience so that no Americans would have to suffer personal hardships. Those sacrifices are continuing today, and they will be needed in the future. It is up to the leaders of the Nation to ensure that the public trust is not abused.

As President, I am deeply committed to a firm policy: *We must not permit private profiteering at the expense of public sacrifice.* The sacri-

prices made by the American people must be for the benefit of all the people, not just for the benefit of big business. *In equal measure, we must not permit the big oil companies or any other major domestic energy producers to manipulate the public by withholding information on their energy supplies.* That information must be made available to the public, and it must be accurate and complete.

The windfall profits tax that I outlined last December and am again asking the Congress to pass would serve this policy by preventing major domestic energy producers from making unconscionable profits as a result of the energy crisis. It would exact a tax of up to 85 percent on receipts from sales of crude oil above the ceiling set by the Cost of Living Council in December of 1973.

3. *Energy-Related Unemployment Insurance:*

The energy emergency will undoubtedly result in some dislocation within the economy. Selected labor market areas may experience unusually large rises in unemployment despite our best efforts to minimize economic disruption. Jobs in those areas may become harder than usual to find. Therefore, as an integral part of the same philosophy which had led me to seek a windfall profits tax that prevents a few people from benefiting unduly from the energy emergency, I will also recommend new unemployment insurance measures to cushion American workers against the shocks of economic adjustment. Last April, I submitted legislation to improve the unemployment insurance program by increasing benefit levels and expanding coverage. I call again for the enactment of these measures. In addition, I will submit unemployment insurance amendments that would, on enactment, extend the duration of benefit entitlement and expand coverage in those labor market areas that experience significant increases in the level of unemployment. These provisions, coupled with the recently enacted Comprehensive Employment and Training Act will provide a solid foundation for the more rapid reabsorption of workers into the Nation's economy.

4. *Mandatory Reporting of Information by Private Industry:*

The information now provided to the public and to the Government by the energy industry is insufficient for public planning purposes. This is a serious deficiency which has understandably become a matter of intense public interest. To correct it, I will shortly submit legislation requiring major energy producers to provide to the Government a full and constant accounting of their inventories, their production and their reserves. Where required for national security or competitive purposes, confidentiality of the information will be protected. Most of this data, however, can and will be made available to the public.

To provide a focus for the collection and analysis of this data, I have directed the Federal Energy Office to establish an Energy Information Center. This center will coordinate energy data within the Government and provide the information to the public, the Congress and other Federal agencies.

5. *Federal Energy Administration:*

FEA would bring together and significantly expand programs to deal with the current energy emergency. It would also carry out major

new activities in energy resource development, energy information and energy conservation. Included within this agency would be the functions of the Offices of Petroleum Allocation, Energy Data and Analysis, Oil and Gas, and Energy Conservation from the Department of the Interior and the Energy Division of the Cost of Living Council.

III. OUR PROGRAM FOR THE FUTURE: PROJECT INDEPENDENCE

Energy demand in the United States will certainly continue to rise. Were domestic oil production to continue to decline and demand continue to grow at over 4 percent annually, as it did before the embargo, imports would increase from 35 percent of U.S. consumption in 1973 to roughly half of U.S. consumption by 1980.

We must also face the fact that when and if the oil embargo ends, the United States will be faced with a different but no less difficult problem. Foreign oil prices have risen dramatically in recent months. If we were to continue to increase our purchase of foreign oil, there would be a chronic balance of payments outflow which, over time, would create a severe problem in international monetary relations.

Without alternative and competitive sources of energy here at home, we would thus continue to be vulnerable to interruptions of foreign imports and prices could remain at these crippling high levels. Clearly, these conditions are unacceptable.

To overcome this challenge, I announced last November 7 that the United States must embark upon a major effort to achieve self-sufficiency in energy, an effort I called Project Independence. If successful, Project Independence would by 1980 take us to a point where we are no longer dependent to any significant extent upon potentially insecure foreign supplies of energy.

Project Independence entails three essential concurrent tasks.

The first task is to rapidly increase energy supplies—maximizing the production of our oil, gas, coal and shale reserves by using existing technologies and accelerating the introduction of nuclear power. These important efforts should begin to pay off in the next 2 to 3 years. They will provide the major fraction of the increased supplies needed to achieve energy self-sufficiency.

The second task is to conserve energy. We must reduce demand by eliminating non-essential energy use and improving the efficiency of energy utilization. This must be a continuing commitment in the years ahead.

The third task is to develop new technologies through a massive new energy research and development program that will enable us to remain self-sufficient for years to come.

We cannot accept part of the overall program and ignore the others. Within the Federal sector, success will depend on a wide range of actions by many agencies. As an important part of that effort, the head of the Federal Energy Office, William Simon, will mount a major effort this year to accelerate the development of new energy supplies for the future.

Our strategy for Project Independence is reflected in urgent measures now pending in the Congress as well as many new legislative proposals and administrative actions I now plan to take.

A. Legislation Still Awaiting Congressional Action

Over the past three years, I have submitted a number of legislative proposals that are essential to our pursuit of energy self-sufficiency but are still awaiting final Congressional action. I ask that the 93rd Congress move ahead with these proposals, and I pledge the cooperation of this Administration in working out any differences. These proposals include the following:

Natural Gas Supply Act

The artificially low prices for natural gas created by Government regulations continue to create a double problem: consumers wish to purchase more of this cheap, clean fuel than is available, while suppliers have little incentive to develop it. I again ask the Congress to provide for competitive pricing of newly developed gas supplies in order to encourage new drilling and to direct available gas into the premium uses.

Although my deregulation proposal should not cause a significant rise in consumer prices for natural gas for some years, I recognize that there is a strong desire to provide added insurance that unreasonable price increases do not occur. This insurance can be provided by adding to the Administration's legislative proposal a provision authorizing the Federal Power Commission to establish limits on absolute price increases. We are prepared to work with the Congress on these changes.

Naval Petroleum Reserves

The Nation has vast oil and oil shale reserves which years ago were set aside for national defense purposes by placing them under the control of the Secretary of the Navy. That action was taken at a time when naval petroleum requirements were an especially important share of total national petroleum consumption. Some of these oil reserves, principally those located in Wyoming and California, have been explored and developed to the point where limited production is possible. The largest reserve, located in Alaska, has not been significantly explored or developed and could not be available for production for several years, even in a grave national emergency. I have proposed legislation that would greatly improve the availability of the reserves for future needs and would permit limited production from the Elk Hills Reserve in California to assist in meeting our short-term energy problems.

In accordance with law, the Secretary of the Navy has issued and I have approved a finding that production of oil from Naval Petroleum Reserve #1 (Elk Hills) is necessary for national defense purposes. Approval of the Congress is also necessary and I have proposed legislation that would give such Congressional approval. It would also provide that funds from the sale or exchange of the oil could be used for further exploration and development of Elk Hills and for exploration of Naval Petroleum Reserve #4 in Alaska. I am pleased that the Senate has already passed this legislation, and I am hopeful that immediate action will now be taken by the House of Representatives.

Mined Area Protection

Act is needed to encourage the develop-

erals to go forward in a way that is environmentally safe. The absence of clear legislation in this area is inhibiting the development of our coal reserves. The Senate has passed a bill, but it deals only with surface mining of coal rather than all mining and it contains provisions which would actually impede production of coal.

The House Committee on Interior and Insular Affairs is scheduled to take up the matter soon and I am hopeful that it will act favorably on the Administration's proposal.

Deepwater Port Facilities

Even though our policy is to achieve self-sufficiency, we will clearly continue to import oil as long as it is available at reasonable prices. To enable us to import fuel more economically, I have proposed Federal Government licensing of the construction and operation of deepwater port facilities three miles or more at sea on the Outer Continental Shelf. The main use of these facilities would be to import crude oil in ships that are economically and environmentally desirable, but are too deep of draft to permit their entry into our port facilities on the East and Gulf Coasts.

This legislation would also eliminate many of the legal uncertainties which now drive private investors away from American waters and to other nations of the Western Hemisphere. The present system only serves to create investments and jobs abroad and raises our costs of imported oil, already high, even further.

Drilling Investment Credit

Last April I proposed that the investment credit provisions of present tax laws be extended to provide a credit for all exploratory drilling for new oil and gas fields. Approval of this provision would provide an essential incentive for new oil and gas exploration. At the same time, I am asking the Congress to eliminate the tax shelter that now exists for wealthy taxpayers who reduce their taxes by taking deductions for investments in oil drilling.

Mineral Leasing Act

The Mineral Leasing Act of 1920 governs the exploration and production of oil, gas, coal, and other minerals on Federal lands while the Mining Act of 1872, governs the exploration and mining for "hard-rock" (gold, silver, copper, etc.) minerals. Both acts have become obsolete. Last February, I proposed a bill that would place all mineral exploration and mining activities on Federal lands under a single Federal leasing system. The bill would assure that the persons who obtain the leases are those who have an interest in early exploration for oil, gas, and other minerals. It would also require that exploration meet the environmental standards of the Administration's proposed Mined Area Protection Act.

Organizing the Federal Energy Effort

If the Federal Government is to achieve prompt and productive results in the energy field, its many energy programs and resources must be organized in the best possible manner. Toward this end, I have submitted several organizational proposals to the Congress and urged their prompt adoption. One calls for establishment of the Federal Energy

Administration as discussed above. The others call for statutory establishment of the following:

(1) *Energy Research and Development Administration:*

This new organization would provide unified leadership and direction for energy technology programs at the Federal level. ERDA would include the research and development as well as the production functions of the Atomic Energy Commission, along with selected energy research and development functions of the Department of the Interior, the National Science Foundation, and the Environmental Protection Agency. Under this proposal, the five-member Atomic Energy Commission would be renamed the Nuclear Energy Commission and would carry out the vital task of licensing and regulating the rapidly growing use of nuclear power.

(2) *Department of Energy and Natural Resources:*

As the longer-run solution to the many interrelated problems in the energy and natural resources area, I have proposed the establishment of this new department. DENR would incorporate most of the responsibilities of the Department of the Interior; the activities of the Forest Service and certain water resource functions of the Department of Agriculture; the activities of the National Oceanic and Atmospheric Administration of the Department of Commerce; the water resource planning functions of the Corps of Engineers; the gas pipeline safety functions of the Department of Transportation, and the Water Resources Council. Drawn together, these responsibilities would form the basis of a modern department truly capable of providing a much needed balance between the wise utilization and careful conservation of our Nation's precious natural resources.

Because of the energy crisis, I urge that the Congress give priority attention to the creation of FEA and ERDA. Because of its comprehensive scope, DENR may require additional examination by the Congress, but I reaffirm the need for this modern Cabinet department. Once DENR is established, it should incorporate the functions of ERDA and FEA.

B. New Legislative Initiatives

In addition to the legislation now pending before the Congress still further steps must be taken if we are to progress at a proper pace toward self-sufficiency. Within the next several weeks, I will be sending to the Congress a number of legislative proposals to help us take those steps, including:

Changes in Foreign Tax Treatment

U.S. companies that produce oil overseas have been granted the same 22 percent depletion allowance abroad that is granted to U.S. companies producing oil in the United States. Both allowances provide an incentive for oil production.

As we move toward U.S. self-sufficiency in energy, however, we want

Taxes paid to foreign governments by U.S. oil companies drilling abroad have increased dramatically. There is growing concern about the degree to which such increases should be allowed as credits against U.S. tax on other income. Under these circumstances, it is no longer realistic to treat these payments to foreign governments entirely as income taxes creditable against the U.S. tax. Obviously, however, the oil producing countries, like any other country, have the right to impose taxes and some reasonable portion of those taxes should be creditable. I have asked the Treasury Department to prepare proposals which would cause part of these amounts to be designated as a creditable tax and the balance to be allowed solely as a deduction.

Accelerating the Licensing and Construction of Nuclear Facilities

Nuclear power, which lessens our dependence on foreign fuel, is an essential part of our program of achieving energy self-sufficiency. At present, however, it takes 9-10 years to complete the planning, licensing, and construction of nuclear power plants. In order to get vitally needed nuclear power on-line more rapidly, I have directed that steps be taken to reduce the licensing and construction cycle to 5-6 years, without compromising safety and environmental standards.

I will soon transmit a legislative proposal to expedite the completion of nuclear power plants by separating the approval process for plant sites from the reactor licensing process and by encouraging the use of standardized plant designs. These designs, once approved, would reduce the required licensing review time and would enhance safety. This legislation would also permit the establishment of an inventory of approved sites for nuclear plants.

Efficiency Labels

Energy conservation must play a major role in achieving self-sufficiency, but few of the products we now purchase clearly indicate how much energy they require to operate. To assure that such information is available, I will shortly submit to the Congress legislation requiring that all major appliances and automobiles produced or imported into the United States be clearly labeled to indicate their energy use and energy efficiency.

Energy Facilities Siting

The present multitude of Federal, State, and local approvals required for the construction of energy facilities has caused serious delays in their availability. There is also no provision for advanced approval of sites which will be needed in the future. In addition, the public has often been frustrated because public participation in the site approval process seldom occurs early enough to affect the basic siting decision.

In 1971 I requested legislation to overcome these problems for electrical power plants and transmission lines. I resubmitted similar legislation in February 1973, but the Congress has not acted on my proposal. I have now directed that new legislation be prepared, building upon my earlier proposals but covering additional critical energy facilities. This legislation will be directed toward:

—advanced approval of adequate sites for energy facilities on a regional basis;

3440 —better coordination of the various approvals now required by all levels of Government;

—and improved long range planning of energy facility requirements.

Changes in the Clean Air Act

The Clean Air Act has provided the basis for major improvements in air quality and we must continue our progress toward even greater improvement. However, during the current energy shortage, it has become clear that some changes in the act are needed to provide greater flexibility in deadlines and other requirements. The special energy legislation now before the Congress would permit temporary relaxation in some requirements applicable to power plants when an adequate supply of clean energy is not available. It would also extend the deadlines for the reduction of emissions from automobiles. I hope the Congress will move quickly to grant authority for temporary relaxation of requirements and freezing the standards for auto emissions—now applicable to 1975 model cars—for two additional years. This latter action will permit auto manufacturers to concentrate greater attention on improving fuel economy while retaining a fixed target for lower emissions. These changes can be made without significantly adverse effect on our progress in improving air quality.

The Congress has also been advised by the Environmental Protection Agency of evidence demonstrating that the reductions of nitrogen oxides from automobiles as required by the Clean Air Act are unnecessarily stringent and that technology to achieve the reductions is not yet practicable. In addition, the Congress has been advised by the Environmental Protection Agency that deadlines cannot be met for meeting air quality standards in some metropolitan areas without drastically curtailing the use of motor vehicles. For instance, these deadlines would require that motor vehicle usage in Los Angeles be reduced by as much as 87 percent.

An extensive review is now underway within the executive branch of the implications of court decisions which require that EPA act to prevent "significant deterioration" of air quality—a requirement that is not defined in either the law or court decisions. This matter has far-reaching implications for public policy regarding land use as well as air quality. Changes in the law may thus be required to deal with this problem, and we will consult with the Congress as appropriate.

We must continue to assess the impact of actions required by the Clean Air Act so that there will be a basis for sound decisions that provide an appropriate balance among our objectives for environmental quality, economic and social growth, energy supply and national security.

IV. NEW ADMINISTRATIVE ACTIONS AND STUDIES

In addition to preparing the legislative proposals above, I have directed that a number of executive actions be taken and additional legislative studies be made which could help us to succeed with Project Independence. Among these actions are the following:

Outer Continental Shelf Development

The undiscovered oil and gas beneath our Outer Continental Shelf can provide a significant portion of the energy necessary to make us self-sufficient. I have already ordered leasing in that area to be stepped up.

3441

Today I am directing the Secretary of the Interior to increase the acreage leased on the Outer Continental Shelf to 10 million acres beginning in 1975, more than tripling what had originally been planned. In later years, the amount of acreage to be leased will be based on market needs and on industry's record of performance in exploring and developing leases. In contracting for leases, the Secretary of the Interior is also to ensure that the proper competitive bidding procedures are followed and that environmental safeguards are observed. He will, in addition, set up an interagency program for monitoring the environmental aspects of the new leasing program. There will be no decision on leasing on the Outer Continental Shelf in the Atlantic and in the Gulf of Alaska until the Council on Environmental Quality completes its current environmental study of those areas.

Alaska Pipelines

In 1973, the Congress passed the Alaskan pipeline bill, allowing the construction of a vitally needed oil pipeline. The Secretary of the Interior plans to issue the construction permit for that pipeline this afternoon, and construction should begin this year.

It has long been clear that while an oil pipeline was needed, it alone would not be enough. In addition to the huge oil reserves in the North Slope of Alaska, there are also gas reserves there of at least 26 trillion cubic feet—enough to heat 10 million homes for 20 years. Construction of a gas pipeline should thus accompany the construction of the oil pipeline. What is now needed, and what I am directing, is prompt action by the Administration. Interior Secretary Morton expects to receive two competing applications for the gas pipeline in the near future, one proposing construction across Alaska and the other proposing construction across Canada. I have asked the Secretary to consider these proposals carefully but promptly and to deliver a recommendation to me as soon as possible. I have also asked the Secretary to undertake a further study of the need for future oil and gas pipeline capacity and the best routes for new pipelines should they prove necessary.

Stimulation of Synthetic Fuel Production

At current rates of consumption, our coal reserves could supply our needs for 300 years while shale oil could satisfy an additional 150 years of demand. However, these resources are not easily recoverable, or usable in a manner that is environmentally acceptable. Therefore, the development of a domestic synthetic fuels industry—the production of oil from shale and the production of gas or oil from coal—can be an important element of our program for reducing our future dependence on energy imports.

The recent bidding for the first commercial oil shale lease indicates strong commercial interest in shale oil development. Five other lease offerings of Federal oil shale lands will be made this year. Several companies have also announced plans to construct plants for the production of commercially usable gas from coal. Nevertheless, a variety of factors including environmental, economic, technical, and regulatory problems impose constraints on any major increase in the commercial production and industrial use of synthetic fuels. I have therefore asked the Administrator of the Federal Energy Office to head up an interagency evaluation

A of financial or economic incentives or regulatory changes that may be needed to stimulate domestic production.

Evaluating Energy Efficient Products

There are now several products on the market which, if given wider use, might help us to use energy more efficiently and could conceivably reduce air pollution. Among them are chemical catalysts and additives, attachments for automobile engines and more efficient heat transfer devices for industrial and home furnaces. Previously, these products have not been commercially profitable because of the low price of fuel. With an increase in fuel prices, however, they have become more attractive. I have therefore directed the Federal Energy Office to collect information on these products and on their energy efficiency. As results are available, we will publicize them and, where appropriate, will purchase the products for use by the Government.

Improving Urban Transportation

It is widely recognized now that the development of better mass transit systems may be one of the key solutions to both our energy and environmental problems. My budget for fiscal year 1975, which will be sent to the Congress in the next two weeks, gives special priority to the improvement of urban transportation, especially transit bus fleets. In addition, I will soon propose legislation to increase the amount and flexibility of Federal transportation aid which is available to local communities.

Energy Research and Development

Nowhere will the need for the combined efforts of industry and Government be greater than in energy research and development. If we are to see the successful culmination of Project Independence, the Federal Government must work in partnership with American industry.

For the last five years, I have provided for a continual expansion of our efforts in energy research and development. Federal funding increased almost 75 percent from \$382 million in fiscal year 1970 to \$672 million in fiscal year 1973 and was then raised to \$1 billion for fiscal year 1974. Last June I announced my commitment to an even more rapid acceleration of this effort through a \$10 billion Federal program over the next five years, and I asked the Chairman of the Atomic Energy Commission to develop recommendations for the expanded program.

Today I am announcing that in fiscal year 1975—the first year of my proposed five year, energy R&D program—total Federal commitment for direct energy research and development will be increased to \$1.8 billion, almost double the level of a year ago. In addition, I will be requesting an increase of \$216 million for essential supporting programs in basic and environmental effects research.

Regardless of short-term fluctuations in the energy supplies, our Nation must move swiftly and steadily on a course to self-sufficiency. The private sector clearly must provide most of the money and the work for this effort. We must also guard against Government expenditures which merely replace private sector investments. But the Federal Government must have a role to play in supplementing and accelerating private development and market incentives.

are lacking. The Federal expenditures which I am announcing today are designed to serve those purposes.

In pursuing our energy R&D program, we must maintain balance. We cannot afford to direct all our efforts to finding long-term solutions while ignoring our immediate problems, nor can we concentrate too strongly on finding short-range solutions. Our program must be structured to provide us with payoffs in the near, middle, and far term.

For the near term—the period before 1985—we must develop advanced technologies in mining and environmental control that will permit greater direct use of our coal reserves. We must speed the widespread introduction of nuclear power. And we must work to develop more efficient, energy-consuming devices, for use in both home and industry.

Beyond 1985, we can expect considerable payoffs from our programs in nuclear breeder reactors and in advanced technologies for the production of clean synthetic fuels from coal. By this time, we should also have explored the potential of other resources such as solar and geothermal energy.

For the far term, our programs in nuclear fusion, advanced breeder reactors, hydrogen generation and solar electric power appear to be the ultimate keys to our energy future.

V. CONCLUSION

Although shortages were long in appearing, the energy crisis itself came suddenly, borne by a tragic war in the Middle East. It was a blow to American pride and prosperity, but it may well turn out to be a fortunate turning point in our history.

We learned, at a stage short of the truly critical, that we had allowed ourselves to become overly dependent upon foreign supplies of a vital good. We saw that the acts of foreign rulers, even far short of military action, could plunge us into an authentic crisis. The Arab oil embargo will temporarily close some gasoline stations, but it has opened our eyes to the short-sighted policy we had been pursuing.

The energy emergency has shown us that we must never again be caught so dependent upon uncertain supplies. It is a lesson the American people must and will take to heart. By 1980, if we move forward with the proposals I have outlined today, I believe we can place ourselves in a position where we can be essentially independent of foreign energy producers.

America has half the world's reserves of coal. It has billions of barrels of oil in the ground, as well as convertible oil shale. It has vast natural gas reserves. We have the world's largest installed nuclear capacity and half the world's hydroelectric plants. This represents a truly enormous store of energy.

The United States also has the largest pool of highly trained scientific talent in the world. Our managerial skills in the private sector are enormous. And our organized facilities for solving technical problems in universities, businesses, and government are unparalleled.

I have no doubt that the bringing together of these natural and human resources can propel us toward an era of energy independence.

It will take time. But along the way we will assure that no groups of Americans are better off because other groups are suffering. We will

3444

assure that the genius of the free enterprise system is maintained and not destroyed by its response to this crisis.

Years from now, let us look back upon the energy crisis of the 1970s as a time when the American spirit reasserted itself for the lasting benefit of America and the world.

RICHARD NIXON

The White House,
January 23, 1974.

NOTE: For the President's remarks upon transmitting his energy message to the Congress, see the following item.

The Energy Crisis

The President's Remarks Upon Transmitting His Energy Message to the Congress. January 23, 1974

The energy crisis is now touching the lives of millions of Americans. And just as the people of this country are doing their part to meet this crisis, now it is time for the Federal Government, your Government, to do its part by enacting legislation that will accomplish these goals.

In a meeting with the legislative leaders this morning, I set forth these primary objectives that I consider to be of the highest priority for the Congress as it begins its new session:

- First, we must protect the jobs of American workers.
- Second, we must prevent price gouging when you buy gas for your car and heating oil for your homes.
- Third, we will compel the oil companies and other energy producers to provide the public with complete information on their supplies. And we will prevent them from making windfall profits as a result of the sacrifices that you are making.

Today, I asked the Congress to enact over 15 different legislative measures which will accomplish these goals. In the next few weeks, I will be sending up additional proposals to get this job done. This legislation is urgently needed to meet the current crisis and to assure that we, the United States, can become self-sufficient in energy by 1980 and not be dependent upon any other country for our energy needs.

For several weeks now, millions of Americans have voluntarily accepted sacrifices in their comfort and convenience so that no American would suffer hardship because of the energy crisis.

It is that sacrifice that has helped us to get through this emergency so far. If that kind of cooperation by millions

of Americans continues, it means that we can help to avoid gas rationing this spring.

NOTE: The President's remarks were filmed at 3:37 p.m. in the Oval Office at the White House for broadcast on radio and television.

For the President's message to the Congress, see the preceding item.

International Clergy Week in the United States

Proclamation 4259. January 24, 1974

By the President of the United States of America
a Proclamation

From the ancient days of the prophets, God has worked through men and women of faith to extend His truth, His love and His peace to other people. Today, as in the time of Abraham, the clergy of the world minister to a world torn between the temporal and the spiritual.

Wherever they can, those who are members of the clergy try to stand fast on the borders between right and wrong, reminding us of both God's judgment and His mercy. They call upon us to choose what we will be, and they challenge us to be more than we have been.

In recognition of the spiritual and social work of the clergy throughout the world, I, Richard Nixon, President of the United States of America, proclaim the week beginning February 3, 1974, as International Clergy Week in the United States. I call upon all our people to honor these servants of God and man through appropriate activities and ceremonies.

IN WITNESS WHEREOF, I have hereunto set my hand this twenty-fourth day of January in the year of our Lord nineteen hundred seventy-four and of the Independence of the United States of America the one hundred ninety-eighth.

RICHARD NIXON

[Filed with the Office of the Federal Register, 2:38 p.m.,
January 24, 1974]



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

September 18, 1974

Handwritten: 3445
#2 RH
7-14
C.B.G.

Memorandum

To: Director, Bureau of Land Management ✓
Through: Assistant Secretary--Land and Water Resources
To: Director, Geological Survey
Through: Assistant Secretary--Energy and Minerals
From: Jared G. Carter, Deputy Under Secretary
Subject: OCS Leasing Schedule

Handwritten: J. G. Carter
9/20

Prior to the meeting of the OCS Research Management Advisory Board on October 3 and 4, the Under Secretary wants a firm leasing schedule laid out that definitely includes the following items:

1. 10 million acres leased in 1975 -- not just 10 million acres offered.
2. A sale in '75 in both Alaska and the Atlantic.
3. An alternative, if number 2 fails, which will still allow leasing of 10 million acres.

On the same time schedule, the Under Secretary wants a plan for a lease sale on the Atlantic in 1975 that would include some leases in all of the promising areas of the Atlantic, rather than just the sale limited to Baltimore Canyon.

It is the responsibility of BLM to complete this response to the Under Secretary by no later than C.O.B. September 30th.

cc: Under Secretary Whitaker
Darius Gaskins
Fred Ferguson
Frank Clarke



Let's Clean Up America For Our 200th Birthday

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RH

#515 Plaintiffs
4-14-76 C. Biggs

FOR RESPONSE TO QUERIES ABOUT WASHINGTON POST ARTICLE BY GEORGE WILSON
10/4/74 CONCERNING JARED CARTER MEMO TO BLM AND GEOLOGICAL SURVEY (9/18/74)

Mr. Carter's memorandum is simply a request for recommendation containing the best thinking of officials of the two bureaus concerned, for purposes of planning. It emphatically does not commit the Department of the Interior to a definite course of action.

For purposes of background it is important to note that the Department has been publicly committed for many months to the idea of leasing 10 million acres of Outer Continental Shelf lands during 1975, and to the idea of leasing areas on the Atlantic and Gulf of Alaska OCS when it becomes feasible.

But there has been no decision made as to what "frontier" (new) areas should be offered for leasing during 1975. Interior is in the process of making that decision. The memo from Mr. Carter is a part of that process.

Under Secretary Whitaker has not made a decision on these points. Even after such a decision, the following steps are required by law—the National Environmental Policy Act of 1969:

1. Interior must evaluate the environmental impacts of each proposed lease sale in detail;
2. It must publish its findings in a draft environmental impact statement to be filed with the Council on Environmental Quality, announced and distributed publicly for scrutiny and analysis;
3. It will—although not specifically required by the NEPA Act to do so—hold public hearings on each draft environmental impact statement;

4. It then must analyze all oral and written comments submitted and write a final environmental impact statement, which also must be filed with CEQ with copies made available to the public;

5. It then must wait at least 30 days before making a firm and final decision to offer for sale the area under study, or any part of the area; the announcement must be made publicly and published in the Federal Register;

6. At least 30 more days must elapse before the sale is held;

7. And finally, the industry is not required to bid on any of the leases offered—and the Government is not required to accept any of the bids.

Even after an area is placed under lease, the Government does not lose control over it. Detailed plans for development must be approved by the Geological Survey before any development can commence—and Geological Survey supervisors and inspectors monitor every phase of development. They are empowered to shut down operations on any lease at any time and they have done so on a number of occasions when public safety and public resources were, in their judgment, in jeopardy. Further, the Secretary of the Interior can halt development indefinitely in a leased area, as a Secretary of the Interior did in the Santa Barbara area after the 1969 blowout there; some of these leases are still blocked to development.

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FOR IMMEDIATE RELEASE

November 13, 1974

Office of the White House Press Secretary

THE WHITE HOUSE

TEXT OF REMARKS BY THE PRESIDENT
AT A MEETING OF GOVERNORS ON OUTER CONTINENTAL
SHELF OIL AND GAS DEVELOPMENT
WEDNESDAY, NOVEMBER 13, 1974, 5:00 PM

The imbalance between our nation's demand for oil and gas and our domestic production of these resources is one of the most serious problems we face. The rapid increase in energy costs in the past years has been a major driving force behind today's inflation.

The essence of this problem is that while we produce about eleven million barrels per day, we consume about seventeen million. Domestic demand is increasing but domestic production is dropping because most of our onshore oil fields are being depleted.

We must adopt rigorous conservation measures, but it is clear that regardless of what conservation steps we take and what eventual long-range energy policy we adopt, in the near term we must increase our domestic production of oil and gas.

I believe that the outer continental shelf oil and gas deposits can provide the largest single source of increased domestic energy during the years when we need it most. The O.C.S. can supply this energy with less damage to the environment and at a lower cost to the U.S. economy than any other alternative. We must proceed with a program that is designed to develop these resources.

Legitimate concerns have been expressed about O.C.S. leasing and development. Let me briefly address myself to these concerns.

First, concern has been expressed that industry does not have the manpower and equipment necessary for exploration and development of ten million acres of O.C.S. lands that that this could lead to the sale of leases at bargain prices.

We believe that industry can make the manpower and equipment available. And I might note that although the ten million acres has been a useful planning objective, we are not wedded to this particular goal. Our primary objective is to produce oil and gas where we can do so safely. But, if any case, we will insure that leases are not sold below fair market values.

I have directed Secretary Morton to insure that these objectives are attained.

Second, concern has been expressed that we should not lease any new areas of the U.S. continental shelf until the coastal states have completed detailed plans to accommodate the onshore impact of offshore production.

(MORE)

(OVER)

Coastal states have only begun to establish the mechanisms for coastal zone planning and that activity must proceed rapidly. But the steps needed now to prepare for a leasing program need not await completion of these detailed plans by the states. The prolonged delay would only postpone the date when we will learn whether substantial reserves, can, in fact, be produced from our O.C.S. and would lengthen the time that we will have to rely on costly imported oil.

Furthermore, the shoreside impact will not occur for several years following institution of a leasing program. That period will enable state and local governments to prepare for the shoreside impact. To help insure effective, cooperative action, state and local officials will be asked to participate in the process of selecting tracts to be considered for detailed environmental and resource study.

In order to facilitate coastal state participation in this effort, I plan to request an additional three million dollars in the current fiscal year for the coastal zone management program to accelerate state planning efforts. I have also directed Secretary Morton and Secretary Dent to consult with coastal governors regarding any additional steps that might be required to plan adequately for onshore development associated with offshore leases that are actually issued.

Third, concern has also been expressed that our proposed leasing program cannot be conducted without unacceptable risks to the environment. We are taking the steps necessary to reallocate additional funds during the current fiscal year to strengthen our pre-leasing environmental assessment and monitoring activities.

If our studies show that development cannot occur in a particular area without unacceptable risk, then we will not hold a lease sale. The step that must now be taken is to begin the detailed studies to identify risks in specific areas to be considered for leasing.

We have made great strides in our O.C.S. safety program thus far, and we will work closely with the coastal states so that they understand and have a part in the further development of regulations that govern these operations off their coast.

I also recognize the concern about oil spills. Our energy and environmental experts have concluded that the greatest danger to our coasts from oil spills is not from off shore production, but, instead, from the greatly expanded tanker traffic that would result from increasing imports.

To assure that any spills that might occur do not cause uncompensated harm, however, I have also asked Secretary Morton and Chairman Peterson to prepare a proposed comprehensive liability statute governing oil spills. This bill will be ready for introduction in the next Congress.

In summary, the resources of the outer continental shelf represent a potential contribution of major proportions to the solution of our energy problem. I am confident that concerns about leasing exploration and development of the outer continental shelf can be addressed openly and fairly, that planning can proceed in an orderly, cooperative way and the problems confronting us in opening new areas can be resolved.

I pledge the cooperation of my Administration in this task.

DEPARTMENT of the INTERIOR

news release

3450

For Release on Delivery, 9:00 a.m. EST, November 14, 1974

REMARKS OF SECRETARY OF THE INTERIOR ROGERS C. B. MORTON BEFORE THE COASTAL STATES GOVERNORS AND THEIR REPRESENTATIVES ON PROPOSED OUTER CONTINENTAL SHELF LEASING PROGRAMS, DEPARTMENT OF THE INTERIOR AUDITORIUM, NOVEMBER 14, 1974

I want to summarize the points that the President, Secretary Simon, and I made to the Governors of our coastal states yesterday. We will then turn to a more detailed discussion of our proposed leasing programs.

Expeditious development of the Outer Continental Shelf is the keystone to meeting the Nation's energy needs in the late '70s and '80s. I would like to explain to you this morning why we believe this is true, and then outline the steps we are taking to develop the OCS.

The next 15 years will be a particularly critical period in terms of energy supply and demand. The Project Independence report, released Tuesday, shows that during this time, except for increased direct use of coal in power plants, we cannot expect new or alternative energy sources--such as coal gasification, oil shale, nuclear fusion, the fast liquid metal breeder-reactor, geothermal, or solar energy--to substantively reduce our demand for petroleum.

The United States presently is consuming about 17 million barrels of oil per day; but we produce only about 11 million barrels. Imports to meet this deficiency are costing the United States \$23 billion a year.

Conservation is essential. We have taken steps to decrease petroleum consumption; and we may have to take more action. But even with existing and projected conservation measures, all realistic estimates project an ever-increasing amount of oil being imported into the United States--unless we significantly increase our domestic production.

It is in the national interest to reduce the existing and projected rate for imports for at least three reasons:

(over)

1. Implementation of our foreign policy can be jeopardized by our over-dependence upon possibly insecure sources of foreign oil.
2. The high price of imported oil is a large and driving force behind today's inflation.
3. It is simply better for our economy to produce domestic oil than to buy high-priced, high-cost imports. It is estimated, for example, that, excluding OCS lease tract bonus payments, OCS oil costs our economy from \$1.50 to \$3.50 per barrel to produce. Imported oil costs about \$10-\$12 per barrel, less any profits returned to this country.

The Outer Continental Shelf and North Alaska hold the greatest promise for new, large domestic petroleum discoveries. We need to explore both areas; but today we are going to discuss only the OCS.

It is estimated by the Geological Survey that recoverable resources from the OCS are 58 to 116 billion barrels of oil and 355 to 710 trillion cubic feet of gas. This oil cannot only be produced at a lower cost than energy from other sources, but we have learned, since the Santa Barbara spill, a great deal more about how to safely produce oil and gas from these off-shore areas. I am proud of our safety record since that spill; and Mr. Radlinski of the Geological Survey will explain our procedures and practices in more detail shortly.

As I indicated on the lease schedule I distributed last night, we are considering 6 proposed sales in 1975. I should emphasize, at this point, that this schedule does not represent a decision to lease in any of these particular areas. It represents only our thinking about what areas should be studied in detail, to be in a position to decide whether or not to hold a sale. The decision to hold any sale is, of course, contingent upon completion of an Environmental Impact Statement. And the President has stated that if the statement shows that development cannot occur without unacceptable environmental risk, the decision will be not to hold a lease sale.

The first two sales in 1975 would be held in the Gulf of Mexico--off South Texas and off East Texas, and Louisiana. We expect that with those two sales, the most promising areas in the Gulf of Mexico will have been leased. To move towards meeting our Nation's energy needs, we will have

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to look to new, or relatively undeveloped, frontier areas. Thus, the third sale would be held off Southern California (assuming that all NEPA requirements have been met) sometime in the summer of 1975.

The fourth sale in 1975 would be in the lower Cook Inlet of Alaska. If the Supreme Court reviews the litigation between us concerning ownership of that area, we hope the sale can be held in conjunction with the State of Alaska under an escrow agreement. Of course, if the Supreme Court denies review, the Federal Government will not be involved in that sale, and it will be a question entirely for the State of Alaska.

The fifth and sixth sales would be held off the Mid-Atlantic and in the Gulf of Alaska in late 1975. A Federal sale in the Atlantic coast area is also contingent upon Supreme Court action that is expected, probably in early summer of 1975.

The detailed studies are well underway in the first four areas scheduled for 1975. We intend to begin now to take the preparatory leasing steps and do the studies necessary to give us the environmental and resource information required to make a leasing decision for the Atlantic and Gulf of Alaska.

This leasing schedule has been developed after careful weighing of a number of resource, environmental, and technological factors:

1. We have reviewed CEQ's Environmental Report concerning the OCS, published in April of this year and have considered their ranking of areas by environmental risk and their concern for adequate regulations and utilization of technology. I have recently responded to this report, outlining the steps we are taking to adopt virtually all of CEQ's recommendations.
2. We have reviewed the results of our survey of industry, state and local governments, and the public concerning resource potential and leasing preferences. We published these results in June of this year.
3. We have collected and examined a considerable amount of resource data gathered in seismic surveys of these areas. We have, in the case of Alaska, the benefit of a call for nominations of possible lease tracts, made in 1968.

We have prepared a draft Environmental Impact Statement on our accelerated leasing program for 1975 which considers the entire United States' Outer Continental Shelf. Public hearings will be held on this draft in Trenton, Santa Monica, and Anchorage in early December. Later this morning we will outline a number of important things that we will be doing in the immediate months ahead to gather information in order to be able to make these lease sale decisions.

While I firmly believe the Department must proceed expeditiously with the preparatory steps for the 6 proposed sales in 1975, I am aware of many of your concerns about OCS leasing in new areas.

There is concern that industry does not have the manpower, equipment and capital necessary to absorb 10 million acres in 1975. As the President explained last night, this Administration is not wedded to leasing 10 million acres in 1975. We are wedded, however, to the idea of beginning to lease in the frontier areas, in addition to the Gulf of Mexico, in order to find and produce as much oil and gas as possible wherever we can do so safely. While there are advantages to setting an acre figure to facilitate planning, I assure you that we will keep our eyes on the real objective of finding and producing oil and gas safely and we will not sell any tract for less than a fair price.

Concern has been expressed that we should not lease in any frontier area until the coastal states have completed detailed plans to accommodate onshore impact of offshore production. I do not believe it is either wise or necessary to delay decisions regarding leasing for several years until these plans are complete. Delay is not wise because the coastal states have only begun to establish mechanisms for coastal zone planning; and we must determine the true potential of the frontier areas as soon as possible, if we are to make a substantial impact on our supply situation. Delay is not necessary because the shore-side impact will not occur for several years following a lease sale. This will provide ample time for state and local planning. Moreover, detailed planning by the state and local governments for the onshore impact of offshore production cannot be done until the exact location of offshore oil and gas is known from actual drilling. The President has stated that we want to increase our efforts and funding under the Coastal Zone Management program to assure effective cooperation with the states in this important area.

Concern also has been expressed that our proposed leasing program cannot be conducted safely without unacceptable risk to the environment. As I stated earlier, a thorough Environmental Impact Statement will be prepared on each proposed sale area before a decision is made. The


President has assured coastal governors that if necessary studies show that development cannot occur within a particular area without unacceptable risk, the decision will be made not to hold a lease sale, or to delete those tracts where there is an unacceptable risk of damage. Moreover, we intend to work closely with the coastal states to assure that they understand and have a part in the further development of regulations that govern OCS operations off their coasts.

But at this time, we must begin the detailed studies to learn where, in fact, the risks are.

There is no question in my mind that our Nation's energy situation is great enough to challenge us to rise above our particular concerns at the federal and state level and to see that we must work together-- federal and state officials--for the sake of all Americans. This effort will require time on all our parts. I have asked Assistant Secretary Hughes to assume the responsibility in the Department for working with you in the months ahead; but I assure you these OCS issues will have my continuing attention because of their significance to our energy picture.

We will have a general question and answers period after our presentations, but before calling on our guests from CEQ and NOAA, I will take two or three questions from the state representatives to clarify any issues I've covered.

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Secretary of Transportation

*Announcement of Intention To Nominate
William T. Coleman, Jr. January 14, 1975*

The President today announced his intention to nominate William T. Coleman, Jr., of Philadelphia, Pa., to be Secretary of Transportation. He will succeed Claude S. Brinegar, who has resigned effective February 1, 1975.

Since 1952, Mr. Coleman has been with the law firm of Dilworth, Paxson, Kalish, Kohn and Dilks of Philadelphia. He was elected a partner in 1956. From 1949 to 1952, he was with the firm of Paul, Weiss, Ruskopf, Wharton and Garrison of New York City.

Mr. Coleman was born on July 7, 1920, in Philadelphia, Pa. He received his A.B. degree summa cum laude in 1941 from the University of Pennsylvania and his LL. B. degree magna cum laude from the Harvard University School of Law in 1946. He was a Langdell Fellow at Harvard Law School from 1946 to 1947. He then served as a law clerk to Supreme Court Justice Felix Frankfurter from 1948 to 1949.

Mr. Coleman is married to the former Lovida Hardin, and they have three children. They reside in Philadelphia, Pa.

Dr. Martin Luther King, Jr.

*The President's Remarks Recorded for the Anniversary
of Dr. King's Birth. January 14, 1975*

On the 46th anniversary of the birth of Dr. Martin Luther King, Jr., it is appropriate to review the progress

of this Nation in securing civil rights for all our citizens. It is an impressive if not a perfect record.

Many of the social and political changes Dr. King envisaged as a civil rights leader are now taken for granted. But progress is not counted by past success; we must continually renew our commitment to the cause of justice and equality.

Dr. King was in the forefront in leading the way to passage of the Voting Rights Act of 1965. I supported the original act and its extension in 1970. This law has helped to open up our political processes to full citizen participation—and we must safeguard these gains through another extension of the statute.

I will support the Congress later this week draft legislation for an extension. I believe the right to vote is the foundation of freedom and equality. It must be protected.

During his lifetime, Dr. King received the Nobel Prize and numerous other awards. But shortly before his death seven years ago, he said that he preferred to be remembered not for these honors, but for his service to his fellow man.

Dr. King is remembered as he wished—and his memory continues to inspire hope for America. We must not let his work die—that will be the highest tribute of all.

NOTE: The President recorded the remarks on Tuesday, January 14, 1975, in commemoration of Dr. King's birth on January 15, 1929.

The White House also announced that the President had sent a telegram to Coretta Scott King expressing his high regard for the memory of her late husband.

THE STATE OF THE UNION

*The President's Address Delivered Before a Joint Session of the Congress.
January 15, 1975*

Mr. Speaker, Mr. Vice President, Members of the 94th Congress, and distinguished guests:

Twenty-six years ago, a freshman Congressman, a young fellow with lots of idealism, who was out to change the world, stood before Sam Rayburn in the well of the House and solemnly swore to the same oath that all of you took yesterday, an unforgettable experience, and I congratulate you all.

Two days later, that same freshman stood at the back of this great Chamber, over there someplace, as President Truman, all charged up by his single-handed election victory, reported as the Constitution requires on the state of the Union.

When the bipartisan applause stopped, President Truman said, "I am happy to report to this 81st Congress that the state of the Union is good. Our Nation is better able than ever before to meet the needs of the American people, and to give them their fair chance in the pursuit of happiness. [It] is foremost among the nations of the world in the search for peace."

Today, that freshman Member from Michigan stands where Mr. Truman stood, and I must say to you that the state of the Union is not good.

Millions of Americans are out of work. Recession and inflation are eroding the money of millions more. Prices are too high, and sales are too slow.

This year's Federal deficit will be about \$30 billion; next year's probably \$45 billion. The national debt will rise to over \$500 billion.

Our plant capacity and productivity are not increasing fast enough. We depend on others for essential energy.

Some people question their Government's ability to make hard decisions and stick with them. They expect Washington politics as usual.

Yet, what President Truman said on January 5, 1949, is even more true in 1975. We are better able to meet our peoples' needs. All Americans do have a fairer chance to pursue happiness. Not only are we still the foremost nation in the pursuit of peace but today's prospects of attaining it are infinitely brighter.

There were 59 million Americans employed at the start of 1949. Now there are more than 85 million Americans who have jobs. In comparable dollars, the average income of the American family has doubled during the past 26 years.

Now, I want to speak very bluntly. I've got bad news, and I don't expect much, if any, applause. The American people want action, and it will take both the Congress and the President to give them what they want. Progress and solutions can be achieved, and they will be achieved.

My message today is not intended to address all of the complex needs of America. I will send separate messages making specific recommendations for domestic legislation, such as the extension of General Revenue Sharing and the Voting Rights Act.

The moment has come to move in a new direction. We can do this by fashioning a new partnership between the Congress on the one hand, the White House on the other, and the people we both represent.

Let us mobilize the most powerful and most creative industrial nation that ever existed on this earth to put all our people to work. The emphasis on our economic efforts must now shift from inflation to jobs.

To bolster business and industry and to create new jobs, I propose a one-year tax reduction of \$16 billion. Three-quarters would go to individuals and one-quarter to promote business investment.

This cash rebate to individuals amounts to 12 percent of 1974 tax payments—a total cut of \$12 billion, with a maximum of \$1,000 per return.

I call on the Congress to act by April 1. If you do—and I hope you will—the Treasury can send the first check for half of the rebate in May and the second by September.

3457

The other one-fourth of the cut, about \$4 billion, will go to business, including farms, to promote expansion and to create more jobs. The one-year reduction for businesses would be in the form of a liberalized investment tax credit increasing the rate to 12 percent for all businesses.

This tax cut does not include the more fundamental reforms needed in our tax system. But it points us in the right direction—allowing taxpayers rather than the Government to spend their pay.

Cutting taxes now is essential if we are to turn the economy around. A tax cut offers the best hope of creating more jobs. Unfortunately, it will increase the size of the budget deficit. Therefore, it is more important than ever that we take steps to control the growth of Federal expenditures.

Part of our trouble is that we have been self-indulgent. For decades, we have been voting ever-increasing levels of Government benefits, and now the bill has come due. We have been adding so many new programs that the size and the growth of the Federal budget has taken on a life of its own.

One characteristic of these programs is that their cost increases automatically every year because the number of people eligible for most of the benefits increases every year. When these programs are enacted, there is no dollar amount set. No one knows what they will cost. All we know is that whatever they cost last year, they will cost more next year.

It is a question of simple arithmetic. Unless we check the excessive growth of Federal expenditures or impose on ourselves matching increases in taxes, we will continue to run huge inflationary deficits in the Federal budget.

If we project the current built-in momentum of Federal spending through the next 15 years, State, Federal, and local government expenditures could easily comprise half of our gross national product. This compares with less than a third in 1975.

I have just concluded the process of preparing the budget submissions for fiscal year 1976. In that budget, I will propose legislation to restrain the growth of a number of existing programs. I have also concluded that no new spending programs can be initiated this year, except for energy. Further, I will not hesitate to veto any new spending programs adopted by the Congress.

As an additional step toward putting the Federal Government's house in order, I recommend a 5 percent limit on Federal pay increases in 1975. In all Government programs tied to the consumer price index—including social security, civil service and military retirement pay, and food stamps—I also propose a one-year maximum increase of 5 percent.

None of these recommended ceiling limitations, over which Congress has final authority, are easy to propose, because in most cases they involve anticipated payments to many, many deserving people. Nonetheless, it must be done. I must emphasize that I am not asking to eliminate, to reduce, to freeze these payments. I am merely recommending that we slow down the rate at which these payments increase and these programs grow.

Only a reduction in the growth of spending can keep Federal borrowing down and reduce the damage to the private sector from high interest rates. Only a reduction in spending can make it possible for the

3458

Federal Reserve System to avoid an inflationary growth in the money supply and thus restore balance to our economy. A major reduction in the growth of Federal spending can help dispel the uncertainty that so many feel about our economy and put us on the way to curing our economic ills.

If we don't act to slow down the rate of increase in Federal spending, the United States Treasury will be legally obligated to spend more than \$360 billion in fiscal year 1976, even if no new programs are enacted. These are not matters of conjecture or prediction, but, again, a matter of simple arithmetic. The size of these numbers and their implications for our everyday life and the health of our economic system are shocking.

I submitted to the last Congress a list of budget deferments and rescissions. There will be more cuts recommended in the budget that I will submit. Even so, the level of outlays for fiscal year 1976 is still much, much too high. Not only is it too high for this year but the decisions we make now will inevitably have a major and growing impact on expenditure levels in future years. I think this is a very fundamental issue that we, the Congress and I, must jointly solve.

Economic disruptions we and others are experiencing stem in part from the fact that the world price of petroleum has quadrupled in the last year. But, in all honesty, we cannot put all of the blame on the oil-exporting nations. We, the United States, are not blameless. Our growing dependence upon foreign sources has been adding to our vulnerability for years and years, and we did nothing to prepare ourselves for such an event as the embargo of 1973.

During the 1960's, this country had a surplus capacity of crude oil which we were able to make available to our trading partners whenever there was a disruption of supply. This surplus capacity enabled us to influence both supplies and prices of crude oil throughout the world. Our excess capacity neutralized any effort at establishing an effective cartel, and thus the rest of the world was assured of adequate supplies of oil at reasonable prices.

By 1970, our surplus capacity had vanished, and, as a consequence, the latent power of the oil cartel could emerge in full force. Europe and Japan, both heavily dependent on imported oil, now struggle to keep their economies in balance. Even the United States, our country, which is far more self-sufficient than most other industrial countries, has been put under serious pressure.

I am proposing a program which will begin to restore our country's surplus capacity in total energy. In this way, we will be able to assure ourselves reliable and adequate energy and help foster a new world energy stability for other major consuming nations.

But this Nation and, in fact, the world must face the prospect of energy difficulties between now and 1985. This program will impose burdens on all of us with the aim of reducing our consumption of energy and increasing our production. Great attention has been paid to the considerations of fairness, and I can assure you that the burden will not fall more harshly on those less able to bear them.

I am recommending a plan to make us invulnerable to cut-offs of foreign oil. It will require sacrifices, but it—and this is most important—it will work.

3459

I have set the following national energy goals to assure that our future is as secure and as productive as our past:

- First, we must reduce oil imports by 1 million barrels per day by the end of this year and by 2 million barrels per day by the end of 1977.
- Second, we must end vulnerability to economic disruption by foreign supplies by 1985.
- Third, we must develop our energy technology and resources so that the United States has the ability to supply a significant share of the energy needs of the free world by the end of this century.

To attain these objectives, we need immediate action to cut imports. Unfortunately, in the short term there are only a limited number of actions which can increase domestic supply. I will press for all of them.

I urge quick action on the necessary legislation to allow commercial production at the Elk Hills, California, Naval Petroleum Reserve. In order that we make greater use of domestic coal resources, I am submitting amendments to the Energy Supply and Environmental Coordination Act which will greatly increase the number of power plants that can be promptly converted to coal.

Obviously, voluntary conservation continues to be essential, but tougher programs are needed—and needed now. Therefore, I am using Presidential powers to raise the fee on all imported crude oil and petroleum products. The crude oil fee level will be increased \$1 per barrel on February 1, by \$2 per barrel on March 1, and by \$3 per barrel on April 1. I will take actions to reduce undue hardships on any geographical region. The foregoing are interim administrative actions. They will be rescinded when the broader but necessary legislation is enacted.

To that end, I am requesting the Congress to act within 90 days on a more comprehensive energy tax program. It includes:

- excise taxes and import fees totaling \$2 per barrel on product imports and on all crude oil;
- deregulation of new natural gas and enactment of a natural gas excise tax;
- I plan to take Presidential initiative to decontrol the price of domestic crude oil on April 1. I urge the Congress to enact a wind-fall profits tax by that date to ensure that oil producers do not profit unduly.

The sooner Congress acts, the more effective the oil conservation program will be and the quicker the Federal revenues can be returned to our people.

I am prepared to use Presidential authority to limit imports, as necessary, to guarantee success.

I want you to know that before deciding on my energy conservation program, I considered rationing and higher gasoline taxes as alternatives. In my judgment, neither would achieve the desired results and both would produce unacceptable inequities.

A massive program must be initiated to increase energy supply, to cut demand, and provide new standby emergency programs to achieve the independence we want by 1985. The largest part of increased oil

3460

production must come from new frontier areas on the Outer Continental Shelf and from the Naval Petroleum Reserve No. 4 in Alaska. It is the intent of this Administration to move ahead with exploration, leasing, and production on those frontier areas of the Outer Continental Shelf where the environmental risks are acceptable.

Use of our most abundant domestic resource—coal—is severely limited. We must strike a reasonable compromise on environmental concerns with coal. I am submitting Clean Air [Act] amendments which will allow greater coal use without sacrificing clean air goals.

I vetoed the strip mining legislation passed by the last Congress. With appropriate changes, I will sign a revised version when it comes to the White House.

I am proposing a number of actions to energize our nuclear power program. I will submit legislation to expedite nuclear leasing [licensing] and the rapid selection of sites.

In recent months, utilities have cancelled or postponed over 60 percent of planned nuclear expansion and 30 percent of planned additions to non-nuclear capacity. Financing problems for that industry are worsening. I am therefore recommending that the one-year investment tax credit of 12 percent be extended an additional 2 years to specifically speed the construction of power plants that do not use natural gas or oil. I am also submitting proposals for selective reform of State utility commission regulations.

To provide the critical stability for our domestic energy production in the face of world price uncertainty, I will request legislation to authorize and require tariffs, import quotas, or price floors to protect our energy prices at levels which will achieve energy independence.

Increasing energy supplies is not enough. We must take additional steps to cut long-term consumption. I therefore propose to the Congress:

- legislation to make thermal efficiency standards mandatory for all new buildings in the United States;
- a new tax credit of up to \$150 for those homeowners who install insulation equipment;
- the establishment of an energy conservation program to help low-income families purchase insulation supplies;
- legislation to modify and defer automotive pollution standards for 5 years which will enable us to improve automobile gas mileage by 40 percent by 1980.

These proposals and actions, cumulatively, can reduce our dependence on foreign energy supplies from 3 to 5 million barrels per day by 1985. To make the United States invulnerable to foreign disruption, I propose standby emergency legislation and a strategic storage program of 1 billion barrels of oil for domestic needs and 300 million barrels for national defense purposes.

I will ask for the funds needed for energy research and development activities. I have established a goal of 1 million barrels of synthetic fuels and shale oil production per day by 1985 together with an incentive program to achieve it.

3461

I have a very deep belief in America's capabilities. Within the next 10 years, my program envisions:

- 200 major nuclear power plants,
- 250 major new coal mines,
- 150 major coal-fired power plants,
- 30 major new [oil] refineries,
- 20 major new synthetic fuel plants,
- the drilling of many thousands of new oil wells,
- the insulation of 18 million homes, and
- the manufacturing and the sale of millions of new automobiles, trucks, and buses that use much less fuel.

I happen to believe that we can do it. In another crisis—the one in 1942—President Franklin D. Roosevelt said this country would build 60,000 [50,000] military aircraft. By 1943, production in that program had reached 125,000 aircraft annually. They did it then. We can do it now.

If the Congress and the American people will work with me to attain these targets, they will be achieved and will be surpassed.

From adversity, let us seize opportunity. Revenues of some \$30 billion from higher energy taxes designed to encourage conservation must be refunded to the American people in a manner which corrects distortions in our tax system wrought by inflation.

People have been pushed into higher tax brackets by inflation with consequent reduction in their actual spending power. Business taxes are similarly distorted because inflation exaggerates reported profits resulting in excessive taxes.

Accordingly, I propose that future individual income taxes be reduced by \$16.5 billion. This will be done by raising the low-income allowance and reducing tax rates. This continuing tax cut will primarily benefit lower and middle income taxpayers.

For example, a typical family of four with a gross income of \$5,600 now pays \$185 in Federal income taxes. Under this tax cut plan, they would pay nothing. A family of four with a gross income of \$12,500 now pays \$1,260 in Federal taxes. My proposal reduces that total by \$300. Families grossing \$20,000 would receive a reduction of \$210.

Those with the very lowest incomes, who can least afford higher costs, must also be compensated. I propose a payment of \$80 to every person 18 years of age and older in that very limited category.

State and local governments will receive \$2 billion in additional revenue sharing to offset their increased energy costs.

To offset inflationary distortions and to generate more economic activity, the corporate tax rate will be reduced from 48 percent to 42 percent.

Now let me turn, if I might, to the international dimension of the present crisis. At no time in our peacetime history has the state of the Nation depended more heavily on the state of the world. And seldom, if ever, has the state of the world depended more heavily on the state of our Nation.

3462

The economic distress is global. We will not solve it at home unless we help to remedy the profound economic dislocation abroad. World trade and monetary structure provides markets, energy, food, and vital raw materials—for all nations. This international system is now in jeopardy.

This Nation can be proud of significant achievements in recent years in solving problems and crises. The Berlin agreement, the SALT agreements, our new relationship with China, the unprecedented efforts in the Middle East are immensely encouraging. But the world is not free from crisis. In a world of 150 nations, where nuclear technology is proliferating and regional conflicts continue, international security cannot be taken for granted.

So, let there be no mistake about it. International cooperation is a vital factor of our lives today. This is not a moment for the American people to turn inward. More than ever before, our own well-being depends on America's determination and America's leadership in the whole wide world.

We are a great Nation—spiritually, politically, militarily, diplomatically, and economically. America's commitment to international security has sustained the safety of allies and friends in many areas—in the Middle East, in Europe, and in Asia. Our turning away would unleash new instabilities, new dangers around the globe, which, in turn, would threaten our own security.

At the end of World War II, we turned a similar challenge into an historic opportunity and, I might add, an historic achievement. An old order was in disarray; political and economic institutions were shattered. In that period, this Nation and its partners built new institutions, new mechanisms of mutual support and cooperation. Today, as then, we face an historic opportunity. If we act, imaginatively and boldly, as we acted then, this period will in retrospect be seen as one of the great creative moments of our Nation's history.

The whole world is watching to see how we respond.

A resurgent American economy would do more to restore the confidence of the world in its own future than anything else we can do. The program that this Congress passes can demonstrate to the world that we have started to put our own house in order. If we can show that this Nation is able and willing to help other nations meet the common challenge, it can demonstrate that the United States will fulfill its responsibilities as a leader among nations.

Quite frankly, at stake is the future of industrialized democracies, which have perceived their destiny in common and sustained it in common for 30 years.

The developing nations are also at a turning point. The poorest nations see their hopes of feeding their hungry and developing their societies shattered by the economic crisis. The long-term economic future for the producers of raw materials also depends on cooperative solutions.

Our relations with the Communist countries are a basic factor of the world environment. We must seek to build a long-term basis for coexistence. We will stand by our principles. We will stand by our interests. We will act firmly when challenged. The kind of a world we want depends on a broad policy of creating mutual incentives for restraint and for cooperation.

As we move forward to meet our global challenges and opportunities, we must have the tools to do the job:

Our military forces are strong and ready. This military strength deters aggression against our allies, stabilizes our relations with former adversaries, and protects our homeland. Fully adequate conventional and strategic forces cost many, many billions, but these dollars are sound insurance for our safety and for a more peaceful world.

Military strength alone is not sufficient. Effective diplomacy is also essential in preventing conflict, in building world understanding. The Vladivostok negotiations with the Soviet Union represent a major step in moderating strategic arms competition. My recent discussions with the leaders of the Atlantic community, Japan, and South Korea have contributed to meeting the common challenge.

But we have serious problems before us that require cooperation between the President and the Congress. By the Constitution and tradition, the execution of foreign policy is the responsibility of the President.

In recent years, under the stress of the Vietnam war, legislative restrictions on the President's ability to execute foreign policy and military decisions have proliferated. As a Member of the Congress, I opposed some and I approved others. As President, I welcome the advice and cooperation of the House and the Senate.

But if our foreign policy is to be successful, we cannot rigidly restrict in legislation the ability of the President to act. The conduct of negotiations is ill-suited to such limitations. Legislative restrictions intended for the best motives and purposes, can have the opposite result, as we have seen most recently in our trade relations with the Soviet Union.

For my part, I pledge this Administration will act in the closest consultation with the Congress as we face delicate situations and troubled times throughout the globe.

When I became President only 5 months ago, I promised the last Congress a policy of communication, conciliation, compromise, and cooperation. I renew that pledge to the new Members of this Congress.

Let me sum it up. America needs a new direction, which I have sought to chart here today—a change of course which will:

- put the unemployed back to work;
- increase real income and production;
- restrain the growth of Federal Government spending;
- achieve energy independence; and
- advance the cause of world understanding.

We have the ability. We have the know-how. In partnership with the American people, we will achieve these objectives.

As our 200th anniversary approaches, we owe it to ourselves, and to posterity, to rebuild our political and economic strength. Let us make America once again and for centuries more to come what it has so long been—a stronghold and a beacon-light of liberty for the whole world.

Thank you.

NOTE: The President spoke at 1:06 p.m. in the House Chamber at the Capitol, after being introduced by Carl Albert, Speaker of the House of Representatives. The address was broadcast live on radio and television.

3463

3464

Atlantic Coast Govs delay pleas

Jan 31

By JOHN WALCOTT

Environment Writer

Interior Secretary Rogers C. B. Morton, chief architect of a Ford Administration strategy for rapid development of offshore oil resources, came to New Jersey Friday bearing an olive branch.

Morton met in Princeton with a loose coalition of leaders from 15 Atlantic Coast states. The coalition was formed to change what state officials think is an arrogant and ill-considered federal policy to speed up development of all the nation's promising offshore oil fields, including the Baltimore Canyon trough off New Jersey and Delaware.

Led by Gov. Byrne, the officials, in their second meeting since forming the coalition, drafted a position paper calling for more detailed environmental impact statements, more federal money for coastal protection planning, and tighter government controls on exploration and production of offshore oil.

And Morton brought with him some concessions. He said the Interior Department is considering sweeping changes in offshore leasing and management policies, changes that would mean tighter restrictions for the oil companies and a bigger piece of the pie for the coastal states.

Among the changes under consideration, said Morton, are:

- Revision of the data disclosure rules, which would require the oil companies to make public all information on offshore oil fields after six months. The companies now can withhold such information for 10 years.
- A vigorous search for shut-in natural gas wells where oil companies are withholding energy supplies. If such wells are discovered, Morton said, the companies that own them will lose their leases. Some of the East Coast states, including New Jersey, have urged Morton to begin such a search.
- A larger force of inspectors to monitor offshore drilling operations.

Interior Secretary Rogers Morton explaining President Ford's offshore oil proposals.

• A ban against joint bidding for offshore leases by the major oil companies. The proposal under study, said Morton, would prohibit any two firms with a combined production of more than 1.6 million barrels of oil per day from bidding together.

• Revision of the royalty system to give the coastal states a share of the revenue from offshore oil production. All revenue from offshore oil now goes to the federal Treasury.

Impact statement

Morton also said the Interior Department has invited California to help the federal government design an environmental impact statement for a proposed lease sale off Southern California. There is no reason, he said, that the Atlantic Coast states cannot do the same thing, particularly if

the states can come up with some common criteria for acceptable offshore drilling operations.

Despite his conciliatory tone, however, Morton did not budge from the Administration line that offshore oil must be developed as quickly as possible in order to reduce America's dependence on imported oil. No delays, he said, will be tolerated.

"We're not going to be arbitrary or capricious," Morton said, "I'm unwilling, though, to tear a page off a calendar and say, 'Let's wait another year or two years or three years.'"

Global problem

Morton also told the states that energy is an international problem. He warned:

"If we fail to take some leadership on the conservation

... we continue to consume 20 percent of the world's energy with six per cent of its population, our friends are going to leave us like rats leaving a sinking ship. They're going to have to—for their own survival."

Morton also rejected a proposal that the federal government take over the exploration of new offshore oil fields from the oil companies. Both Gov. Byrne and New Jersey Environmental Commissioner David J. Bardin have suggested that federal exploration would provide better geological and economic data on which to base lease sales.

Federal exploration, said Morton, would be too expensive and too difficult to regulate.

"We can maintain regulation over other people better than we can over ourselves," he said.

Byrne and other state officials said they found Morton's attitude encouraging.

"I think we have definitely made some progress," Byrne said. "I think Secretary Morton understands the states' concern for how the Outer Continental Shelf is developed, and he indicated clear concern about the states' interests."

"I think we've seen a great deal of movement," said New Jersey Atty. Gen. William F. Hyland. "His [Morton's] threat to cancel shut-in natural gas leases is significant. To my knowledge, this is the first time any interior secretary has taken that position."

"If he does half of what he said he is going to do, he will have done more than any other interior secretary in history," said Bardin.

Needs approval

The states, however, made considerably less progress Friday in hammering out a joint position on offshore drilling. During lunch, a committee drew up a position paper, but the paper now must be distributed and approved by the 15 governors.

The paper includes the following points:

- Offshore drilling should be part of a comprehensive national energy policy developed and implemented in partnership with the states.

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• The Outer Continental

Shelf is a public natural resource, and should be managed with scrupulous care.

• The federal government should honor its 1972 promise not to begin leasing until the Supreme Court resolves the U.S. vs. Maine case over ownership of ocean resources.

• Exploration and production of offshore oil should be separated, and the exploratory findings analyzed before decisions on production are made.

• Appropriate specific environmental impact statements should be completed before leasing begins.

• The federal government should recognize the unique regional characteristics along the Atlantic Coast, and tailor its drilling regulations accordingly.

• Time and funds should be available for states to prepare coastal zone plans, and oil companies should be required to submit long-range plans for onshore facilities.

• State and local governments and businesses should be protected from the potential damage of an oil spill through a no-fault liability fund.

• States should provide adequate staff to carry out their own coastal protection and planning programs.

Not all agree

Not all of the states are expected to go along with the full position paper.

New Hampshire, for example, fully supports the Administration's offshore drilling program. On Friday, New Hampshire Gov. Meldrim Thompson Jr. said he favors immediate development of offshore oil.

Virginia Gov. Mills Godwin, who, like Thompson, is a Republican, said special attention should be paid to protecting the environment, but the nation's economy demands that offshore oil be used swiftly.

EMBARGOED FOR RELEASE
UNTIL 12:00 NOON (EDT)

July 9, 1975

3466

Office of the White House Press Secretary

THE WHITE HOUSE

TO THE CONGRESS OF THE UNITED STATES:

I am transmitting today proposed legislation entitled the "Comprehensive Oil Pollution Liability and Compensation Act of 1975."

This legislation would establish a comprehensive and uniform system for fixing liability and settling claims for oil pollution damages in U.S. waters and coastlines. The proposal would also implement two international conventions dealing with oil pollution caused by tankers on the high seas.

I consider this legislation to be of high national importance as we seek to meet our energy needs in an environmentally sound manner. Those energy needs require accelerated development of our offshore oil and gas resources and the increased use of tankers and deep water ports. This proposal would provide a broad range of protection against the potential oil spills necessarily associated with these activities.

In recent years, we have taken significant steps to limit and control oil pollution in the waters of the United States. Yet, in 1973 alone, there were 13,328 reported oil spills totalling more than 24 million gallons. One-third of the oil spilled is from unidentified sources, where compensation cannot be obtained under existing law. The ability of claimants damaged by spills to seek and recover full compensation is further hampered by widely inconsistent Federal and State laws. Various compensation funds have been established or proposed, resulting in unnecessary duplication in administration and in fee payments by producers and consumers.

This legislation would help protect our environment by establishing strict liability for all oil pollution damages from identifiable sources and providing strong economic incentives for operators to prevent spills. Equally important, the bill will provide relief for many oil-related environmental damages which in the past went uncompensated. For example, State and local governments will be able to claim compensation for damages to natural resources under their jurisdiction.

This legislation would replace a patchwork of overlapping and sometimes conflicting Federal and State laws. In addition to defining liability for oil spills, it would establish a uniform system for settling claims and assure that none will

more

(OVER)

go uncompensated, such as in cases where it is impossible to identify the source of the spill. The legislation provides for a fund of up to \$200 million derived from a small fee on oil transported or stored on or near navigable waters.

This legislation would also implement two international conventions -- signed in 1969 and 1971 -- which provide remedies for oil pollution damage from ships. These conventions provide remedies for U.S. citizens under many circumstances where a ship discharging oil that reaches our shores might not otherwise be subject to our laws and courts. Protection of the international marine environment is basically an international problem since the waters, currents, and winds that spread and carry ocean pollution transcend all national boundaries.

In proposing implementation of the conventions, I am mindful of the fact that the Senate has not yet given its advice and consent to either of them. I urge such action without further delay. The 1969 convention came into force internationally on June 19, 1975, without our adherence, and the continuing failure of the United States to act on such initiatives may weaken or destroy the prospects of adequate international responses to marine pollution problems.

GERALD R. FORD

THE WHITE HOUSE,

July 9, 1975.

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DEPARTMENT OF THE INTERIOR

3468

news release

OFFICE OF THE SECRETARY

For Release on Delivery, 4 p.m. EST, March 3, 1976

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7-8-76
BJS/c

INTERIOR SECRETARY KLEPPE CITES PROGRESS IN ENERGY AND MINERALS DEVELOPMENT

NEW YORK -- Interior Secretary Thomas S. Kleppe said today he is trying to respond to the Nation's energy needs "without turning coal areas into craters" -- or the seas into oil slicks.

In an address to the Calvin Bullock Forum here, the Secretary also said controversies over whether to substitute slurry pipelines for railroads as a means of transporting coal should be settled not by legislation but by "free market decisions, freely made by investors."

"We support legislation that would grant condemnation powers to slurry line builders," Kleppe told his audience of New York investment bankers. "We support removal of competitive barriers to pipeline construction. However, even though we support the concept as well as legislation, we are not satisfied that the problem of water displacement has been answered."

Several proposals are under consideration for building slurry pipelines to transport coal from the Northern Great Plains to electric generating plants in the Southwest and Northwest. Railroads contend the slurry lines would cut deeply into their markets.

Kleppe said Interior's decisions on coal leasing and on Outer Continental Shelf oil and gas development are being made with input and guidance from State and local officials.

"We will continue to hold meetings in the concerned geographic areas and publicize the fact that we seek information," he said of the coal areas.

"Local communities and State governments have far more leverage than the Federal government" in onshore support facilities resulting from offshore oil and gas development, Kleppe said. "On such questions as refinery siting and pipeline shoreline siting, local and State officials have the greatest voice."

Turning to the deep seabeds as a source of minerals to offset foreign imports, Kleppe said, "We have always considered the technological leadership of American ocean mining companies as offering an unparalleled opportunity to the United States."

If our companies do not encounter any political or legal obstacles, "the United States will produce those minerals which we are now obliged to import," he added.

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DEPARTMENT of the INTERIOR

news release

For Release on Delivery 4:00 p.m. (EST), March 3, 1976

REMARKS OF SECRETARY OF THE INTERIOR THOMAS S. KLEPPE
BEFORE THE CALVIN BULLOCK FORUM
NEW YORK CITY, NEW YORK, MARCH 3, 1976

3469

Americans have always believed in tomorrow. As no other people, we have dreamed the impossible dreams. I am here today to say that the American dream is not dead. It is yet to be fulfilled.

Some say that the American dream has been replaced by the American dilemma --the dilemma of energy and the environment. They conclude that the two--in the final analysis--contradict more than complement each other. They fear for tomorrow.

Let us today take a walk into tomorrow. Let us look at the new frontiers in energy: Our vast coal resources available for development....oil and gas exploration on the outer continental shelf...and the tremendous mineral potential of the ocean floors.

Let us also look at the fears: About surface mining in coal...possible oil spills and other environmental impact involved in drilling on the outer continental shelf...and the myriad international difficulties connected with ocean mining.

Before we begin this journey together, let me briefly describe the role of the Interior Department and our responsibilities. We are the chief guardian of America's natural resources--protecting them for future generations. At the same time, we are involved in the study and development of our resources. In a phrase, our job is this: To strike a balance between resource use and resource protection.

Let me also set the historical stage. Americans, six percent of the world's population, account for 33 percent of the globe's energy consumption. This is not to condemn us as wastrels. We are a strong country with powerful production and we know how to use energy.

However, we have been delivered a powerful one-two punch. The Arab oil embargo and quadrupling of foreign oil prices hit us hard. We face even greater threats. Our dependence on foreign oil poses serious problems for our economic stability as well as our national security. Simply put, we are not now masters of our own fate.

That is where we stand today. Now, let us look at tomorrow.

Coal represents one major answer to our energy needs. It is an American answer--not based on uncertain resources in faraway lands--countries with different ideas and diverse interests.

Coal is also not a vague hope--as some of our energy explorations are. As most of you know, we have about half of the world's supply. That means for several hundred years.

3470 [REDACTED] Let me indicate the tremendous impact of our coal reserves another way. If we could mine all of our coal...and if we could burn all of the coal that we mine...there would be no shortage of crude oil in this country. Therefore, our concerns about OPEC prices and OPEC politics would disappear.

The environment, however, becomes our concern.

I announced about six weeks ago the lifting of the federal coal leasing moratorium. Simultaneously, I said the government was not about to flood the country with coal leases. The following are the major elements of this policy --balancing our national need for coal and our national need to protect the environment:

- A fair market return to the taxpayer on the sale of this public resource.
- The leasing of needed coal only when it is needed.
- The leasing of that coal whose value exceeds total cost of production including environmental costs.
- Elimination of excessive lease holdings.
- Public participation in the federal coal decision process.

We see coal pipelines as a supplement to, not a replacement for, transportation of coal from the mines to the point of consumption. There are strong environmental arguments in favor of slurry lines. The economics of the question are disputed. Our support for coal slurry pipelines is limited, however, to support for free market decisions, freely made by investors.

We support legislation that would grant condemnation powers to slurry line builders. We are basically supporting removal of competitive barriers to pipeline construction. However, even though we support the concept as well as legislation, we are not satisfied that the problem of water displacement has been answered.

The point is this: I am trying to respond to the nation's energy needs without turning coal areas into craters.

I have made our coal leasing decisions as openly as possible. We have sought --and received--input and guidance from state and county ..from city and regional officials...and from private citizens. We will continue to hold meetings in the concerned geographic areas and publicize the fact that we seek information.

This is the future. I am giving you a picture of what it will be like--more and more--to accomplish national goals and to do business in the future.

Why do I believe this open decision-making process is such a good one? Simply this: It is vital to avoid unnecessary delays later on. The cost in delays and other difficulties--on the basis of pure practicality--is much greater than the additional effort to obtain greater public input.

Let us turn now to the outer continental shelf and our nation's future in ocean mining.

Some 150 countries will attend this month's Law of the Sea Conference of the United Nations. Their aim is the orderly use and exploitation of the world's ocean resources.

The stakes for the United States are extremely high. We are a nation with long coastlines and we are a worldwide naval and maritime power. Our power as a nation and a people is deeply involved with worldwide resources. We are committed to the freedom of the seas.

You know many of the stakes for America. Let me mention a few:

The traditional rights of passage on and above the high seas--through more than 100 threatened straits...an estimated one and one-half billion barrels of petroleum under the sea floor--a fantastic yet largely untapped energy resource...an endangered fish stock that yields about \$18 billion worth of high-protein food each year...and several trillion dollars worth of manganese, copper, cobalt and nickel that are scattered on the deep ocean bed.

We at the Department of the Interior have a voice in that future. I will discuss our role in some detail. However, we would do well to look first at issues and problems here at home and then in the international field.

Recently, I announced that the Interior Department will be leasing oil and gas tracts in the Northern Gulf of Alaska as soon as we complete preparation for a sale. Before making this decision, I eliminated about 40 percent of the tracts from the proposed Alaska sale because they posed environmental risks. This procedure, which considers all environmental factors for every tract before we lease, will guide us as Interior carries out its offshore oil and gas program. It will hold true especially for offshore leasing in the Atlantic, where we propose to hold our first sale in about six months. If I approve that sale, it could be followed by two others this year along our East Coast.

As you know, there are compelling arguments on both sides of the offshore controversy--so holding an Alaska sale and three Atlantic sales in this bicentennial year would have historic proportions.

There are some concerns on all sides about the results. About the environment...cost benefit calculations involving federal, state and local interests...federal goals and objectives related to local aims and objectives...the tremendous financial risks involving private enterprise.

Our scale of values must not be balanced to favor one interest over another. We are working on behalf of the United States and its people. The victory or defeat of one interest is not necessarily the victory or defeat of another. On the contrary, the failure of one interest may well prove to be the failure of all interests.

The outer continental shelf and onshore Alaska are the only frontier areas for securing increased domestic oil and gas for the immediate future. At present price levels, other petroleum alternatives--such as oil from shale or coal--are not yet economically attractive to produce. The shelf is a real near-term answer to reducing imports.

Assuming leasing were already approved, the following are estimates about the future of the Atlantic shelf. It may be two years before the first discovery...3½ to 8 years for the first production...and 6 to 10 years for any significant production.

Our Department has developed an expanded shelf program. Six sales per year are proposed--primarily in frontier areas. We hope to offer prospects in each frontier area by 1978. I wish to emphasize that this schedule does not represent a decision to lease in any of these particular areas. It represents only our intention to see if opening new OCS areas is reasonable and prudent. Actual sale must follow a number of considerations. I refer specifically to the interests of individuals and states. They have a real voice in the decision-making process before a sale can be made.

Our procedures call for state involvement at the following stages: Tract nominations, tract selection, environmental impact statements, public hearings, pipeline rights-of-way, and the location of onshore facilities. These provide the states the opportunity to participate at every major decision point.

My philosophy in energy represents the consensus of this nation: Something must be done to increase our current domestic energy production. Be cautious. Be prudent. But, above all, be reasonable.

Reason means we must balance our energy and environmental needs.

Our OCS oil and gas-leasing program has not escaped its share of disagreement. Nevertheless, our program is highly positive for the nation:

--offshore oil production can be brought on-line relatively quickly; and

--it has environmental costs which are quite acceptable relative to alternatives.

Some coastal states have raised important questions about environmental impacts. Such impacts are inseparable from increased OCS operations. There is no way to avoid some disturbance.

At the same time, let me emphasize this: Responsible lease management can minimize these occurrences. Effects on marine environment should be limited and highly localized. Chronic pollution from the shelf does not--in all probability--pose a serious threat to the Atlantic Coast.

Many coastal communities fear major oil spills off their beaches. Yet, evidence from various studies by educational institutions and government agencies indicate this: The risks of oil spills may be greater if oil is imported in tankers than if it is produced offshore and transported to shore in pipelines.

The relative oil spill rate for tankers is forecast at almost twice that of shelf production. It appears reasonable to assume that the risk of oil spills will be significantly reduced whenever OCS production--transported onshore by pipeline--displaces foreign imports carried in tankers.

New shelf production off the Atlantic Coast should result, therefore, in decreasing the risk of oil spills. Also, because of the East Coast's heavy reliance on imported oil, shelf should bring it these benefits.

3473

Petroleum supply security, increased employment and a general increase in regional investment.

As a result of the Santa Barbara spill, we have built many reforms into our shelf leasing program. They are, perhaps, too long to explain here. However, let me tell you of some excellent results since that spill.

More than 5-thousand wells have been drilled on the shelf. The number of fixed structures there has increased from about 1,600 to some 2,200. The overall result is this: We have witnessed only three significant incidents of environmental damages from offshore operations.

Another environmental concern is expressed--that of onshore support facilities resulting from offshore development. This is where local communities and state governments have far more leverage than the federal government. On such questions as refinery siting and pipeline onshore siting, local and state officials have the greatest voice.

I would call your attention to a proposal which the President recently submitted to the Congress. It would provide assistance to cities and states for extraordinary fiscal impacts resulting from the development of federal energy resources. This billion-dollar program is called the Federal Energy Development Impact Assistance Fund. The funds are to be used for planning and constructing needed new physical facilities such as roads, schools, and hospitals.

Responsibility is the price that we Americans pay for our independence. For every advance in society, there is some element of hope and fear. We cannot discover energy or discover the oceans if we have our heads in the clouds. We must face our problems as practical men and women. There is no free pass. We must make choices and accept the consequences of those choices. I believe the American people are willing to make the hard choices on energy.

As we look farther into the oceans--beyond our continental shelves to the deep seabed--our mineral resource future grows more and more promising. Enormous quantities of metal-rich nodules pave the world's ocean floors. The Pacific Ocean alone is estimated to contain more than 1.5 trillion tons of these nodules. Traces of more than twenty metals are found in these nodules. However, for the immediate future, we estimate that four of these metals--nickel, copper, cobalt and manganese--will attract commercial miners.

Anyone who discusses the mineral potential of the deep seabed should begin cautiously. We do not know a great deal about what is down there. Not much more than three percent of the ocean floors have been surveyed in any systematic fashion. But already, prospectors for manganese nodule deposits have identified many potential mine sites. There are so many that only a small percentage of those sites will be mined by the first generation of ocean miners.

347

3474 In recent months, our Department has reevaluated private industry's progress toward commercial production of seabed metals. We have always considered the technological leadership of American ocean mining companies as offering an unparalleled opportunity to the United States. An American-led ocean mining industry could generate large, new, secure mineral supplies for our industrial use. American-produced deep ocean minerals would be free from potentially unfriendly political control by other governments. And, we hoped seabed minerals might well be less expensive than minerals from lower-grade land mines in which we would otherwise depend. The results of our studies indicate that we may have been too cautious. American ocean mining companies have moved farther and faster than we expected.

As we meet here today, ocean miners are moving into the final phases of development activities. They have already completed extensive prospecting activity in the north Pacific region. Each principal American-led ocean mining company has identified mine sites capable of supporting commercial production. They have solved most, if not all, of the major technological barriers to the recovery and processing of manganese nodules. As a result, companies are now planning to begin at-sea testing of prototypes of their mining systems.

These test mining operations, expected to begin within a matter of months, could recover as much as 1,000 tons of nodules each day.

These and other technical accomplishments by American companies mean this: If our companies do not encounter any political or legal obstacles, the United States will produce minerals which we are now obliged to import.

American ocean mining companies could begin production early in the 1980's. If that occurs, several companies would produce about three million tons of nodules per year. They would extract nickel, copper and cobalt. At least one company will also produce manganese. Their annual production rate is expected to be about one million tons.

If these plans are followed, the United States will reduce within a decade its nickel import requirements by 50 percent. Our imports of cobalt will be completely eliminated. Manganese imports could fall by 40 percent. Our copper imports will be reduced by as much as one-third. The value of this seabed production would exceed \$1 billion.

Without a healthy ocean mining industry, the United States will only become more dependent on imports of these minerals. For the most part, these imports would originate in developing countries where investment conditions are potentially unstable and supply is insecure.

There is a sobering aspect of this rather hopeful picture I have painted. Ocean miners themselves do not face a stable investment climate. To bring an ocean mining operation into commercial production, each company will have to invest between \$200 and \$600 million. Already our companies have spent approximately \$30 million each. Decisions to invest much larger sums will be difficult.

The uncertainty stems from an international legal/political controversy highlighted in the UNCLOS Conference on the Law of the Sea. The developing nations acting as a group--oppose the concept that all nations have a right of guarant

access to the resources of the seabed. They argue that the United States and other industrial nations must agree to submit our existing rights to those resources to the discretion of an international authority. That authority would be empowered to discriminate against technologically advanced nations, and, indeed, to deny our right to produce minerals. Even if the international organization permits United States companies to operate in the seabed, developing nations would want it to have the power to limit and control production levels in a cartel-like fashion. 3475

Such conditions would not induce American companies to invest in ocean mining. As a result, the United States could be denied the mineral resource benefits of the technological innovations pioneered by our companies.

I understand that since last spring's formal session of the Law of the Sea Conference, there have been indications that some developing countries are willing to work with us to achieve a reasonable treaty. Such a treaty would guarantee our access to seabed resources while meeting the desire of developing countries to participate in the development of ocean minerals. If this is in fact the case, then we can look forward to a new era in international cooperation.

I will not speculate on the outcome of the Law of the Sea negotiations. But I will tell you what the Department of the Interior has been and will be doing while the diplomats are talking. We have the responsibility within government to foster and encourage the development of domestic mining industries. Ocean minerals are as much a concern to the Interior Department as the coal mines of Appalachia and the copper mines of the southwest.

I can think of no American industry more deserving of encouragement than the pioneering ocean mining industry. We will provide the necessary leadership for that encouragement.

While ocean miners are opening new minerals frontiers, the Interior Department will be right there with them. The Geological Survey and the Bureau of Mines together have more than a century of experience in finding critical mineral resources, learning how they are mined, and understanding the economic obstacles facing mineral industries. No organization in or out of government knows better how to supply today's mineral needs while conserving resources for the future.

As I said earlier, responsibility is the price of independence. We celebrate two centuries of independence because Americans--as few peoples and nations in the world--have accepted responsibility. No nation has been more generous with its national treasure and no people has been more generous in defense of world freedom. We will continue to contribute to the international community. We will also remain a strong, free and independent nation.

Yes, I believe in tomorrow. I believe in tomorrow because I believe in you and in the American people.

x x x

3476



United States Department of the Interior

IN REPLY REFER TO:

1792 (732)

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

Memorandum

APR 11 1976

To: Team Leader, Atlantic OCS Office

From: Assistant Director, Minerals Management

Subject: Preparation of Draft EIS for Proposed Sale No. 40

There are three topics which must be included in the draft EIS for proposed sale no. 40 which were not included in the outline which we reviewed a few weeks ago. The first of these items, which we brought to your attention at the time we reviewed your proposed EIS outline, was the need for a section to be included under the description of the environment which evaluates the future environment without the proposal. Please consult the draft or final EIS for proposed sale no. 35 (Section II.J.) for an example of what is needed for this discussion.

We request also that you include in the description of the environment and impact sections of the draft EIS a description and analysis of the mid-Atlantic region assuming full OCS development (i.e., proposed sale no. 40 and possible sale no. 49). Emphasize the potential cumulative impacts of proposed sale no. 40 in relation to a possible future sale (no. 49) in the mid-Atlantic region. Also include an analysis of impacts from any other proposed or possible future energy related activities in the region of which you are aware in so far as those impacts are cumulative in nature. (For example, increased oil or LNG tanker traffic, construction of deepwater port facilities, etc., could compete for space and in combination with possible or proposed OCS activities create effects which are cumulative in nature.) Also see Section III.N. of the final EIS for proposed OCS sale no. 35.

One of the most significant areas of potential impact related to OCS oil and gas activities offshore is the effect on the food web. This issue has been examined in previous EIS's in a piecemeal fashion as it pertains to individual groups of organisms. The Office of Environmental Project Review has requested that we include an evaluation of effects on the food web as a separate section in the impact discussion in OCS environmental statements. Consequently, we have requested the Pacific OCS Office to prepare a "base" section for use



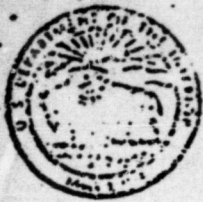
CONSERVE
AMERICA'S
ENERGY

3477

in future EIS's. Once this section is completed, it will be your responsibility to fit it into the draft EIS for proposed sale no. 40 and make it apply if necessary, to specific fauna in the mid-Atlantic area which may be particularly important in terms of the food chain.

If you have any questions concerning this request please contact Bill Calkins or Lois Mason (202-343-6264).

Frank A. Edwards



3478

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240Parrzell
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Surname:

MAR 24 1975

Memorandum

To: Assistant Secretary -- Energy and Minerals

From: Assistant Secretary -- Program Development and Budget

Subject: Request for Information to be used in the Final Environmental Impact Statement on Accelerated OCS Leasing

Mr. Tolson	
Mr. Felt	
Mr. Rosen	
Mr. Sullivan	
Mr. Tavel	
Mr. Trotter	
Tele. Room	
Mr. Holmes	
Miss Gandy	

Doyle 3/24

The Geological Survey provided the Bureau of Land Management with estimates of measured and inferred oil and gas reserves as well as undiscovered recoverable reserves of oil and gas for each of the 17 OCS leasing areas. In a separate response, the Geological Survey provided for each OCS area estimates of years to reach peak production, peak production, number of platforms, number of pipelines and number of onshore facilities. Copies of these responses are attached.

In preparation of the final environmental impact statement on the accelerated leasing program, the following information is requested from the Geological Survey:

1. Estimates of the range of expected petroleum production from each of the 17 OCS areas.
2. Identification of the likely drilling sites in each of the 17 OCS areas. This information should be expressed in the form of hypothetical drilling sites similar to those used in the CEQ report on OCS oil and gas - An Environmental Assessment.
3. Identification of the various elements of the petroleum development system which will likely be used in each area. The report prepared by Tetra Tech Inc. for CEQ identifies the likely component of the petroleum development system for the area addressed in the CEQ report. The programmatic EIS should similarly identify the likely petroleum development system components for all 17 areas. The most important aspect of this identification is to answer the following question. Will the OCS petroleum production of each area be transported by tankers from the area for processing and consumption in another area, or will the OCS petroleum production be transported either by pipeline or tankers to the adjacent coast for processing and consumption in that area?

COPY FOR THE SECRETARY'S OFFICE

These questions are considerably different than those asked by the Bureau of Land Management in their June 27, 1974, request. Question one requests that the information on measured reserves, inferred reserves, and undiscovered recoverable reserves be expressed in terms of the Geological Survey's best estimate of the expected petroleum production for each area. This estimate should be expressed as a single value for total production and peak year production for each of the 17 OCS areas. A range of these values should also be included, but the intent is to define the single best estimate for each of the 17 areas.

An alternative expression of this information, which might be less difficult, is to identify the number and sizes of expected fields in each of the 17 OCS areas. MIT followed this procedure in their report to CEQ. They classified fields as small, i.e. 500 million barrels of oil in place; medium, i.e. 2 billion barrels; and large, 10 billion barrels. If this approach is used, the desired data are the Survey's best estimate of the number and size of fields in each area. Once again, the ranges about these best estimates should also be provided. Answering question one in either of these ways is adequate, but the production estimates for all 17 areas should be expressed in the same way.

The time remaining to finish the accelerated OCS leasing programmatic EIS is very short. Answers to these questions are requested by April 1, 1975. This regrettably short response time will likely not allow highly accurate answers. Therefore, the Survey should also clearly express their caveats about the estimates. The accelerated OCS leasing EIS must contain the best estimates of the Survey.

To facilitate the necessary rapid response to this request, an advance copy of this request has been sent to Mr. Klepper. An advance copy of the Survey's response should be sent to Richard Winnor of the Economics Staff, Office of Policy Analysis. Any questions on this matter should also be addressed to Mr. Winnor at 343-6007.

(sgd) Royston C. Hughes
Royston C. Hughes

Attachments

cc: Secretary's Files
Secretary's Reading File (2)

RWinnor:blp 3/21/75

A/S PDB 49 (2)
Messrs. Moffat, Bardach, Winnor,
Ms. Ross
2 Mr. Montis Klepper (GS)

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United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

3480

Memorandum

26 SEP 1975

To: Acting Secretary

From: Assistant Secretary--Program Development and Budget

Subject: Program Decision Option Document (PDOD) on Proposed Program to Accelerate Leasing on the Outer Continental Shelf (OCS)

Your decision is sought on the proposed program to accelerate Outer Continental Shelf (OCS) oil and gas leasing by the Federal government in calendar year 1975 and succeeding years. This acceleration would occur nationwide according to a revised proposed OCS planning schedule of six proposed lease sales for 1975 and six proposed lease sales per year for the period 1976-1978, including some or all frontier areas by the end of 1978. Attached are a program decision option document, the revised proposed OCS planning schedule, and the final programmatic environmental impact statement.

BACKGROUND

I. Insecure and Expensive Oil Imports

Domestic production of petroleum peaked in 1972 at a rate of 11.2 million barrels per day (mbd). Production declined to 10.5 mbd in 1974. Petroleum consumption, on the other hand, has continued to increase, and imports have risen from 4.5 mbd in 1972 to 6.0 mbd in 1974.

During the 1973 Mideast war, the Arab oil producers imposed an embargo on shipments of oil to the U.S. and certain other countries. This occurrence demonstrated the vulnerability of the U.S. to interruptions in imported petroleum supply. According to FEA estimates, the embargo cost \$16-\$33 billion (1974 dollars) in terms of GNP loss alone.

During and after the Arab oil embargo, the OPEC cartel rapidly raised the price of oil. World prices rose as high as \$20 per barrel at one time. Lately prices have stabilized at \$11-\$12 per barrel, and are supported at that level through production cutbacks among the cartel members. Even at this level, however, imported oil costs the U.S. \$25 billion per year.

The proposed action to accelerate OCS leasing could result in increased oil production of 3 billion barrels per day, and increased natural gas production of 12 billion cubic feet per day by 1985. These amounts are about 20 percent of current consumption rates of oil and natural gas.

Increased OCS production of oil and natural gas would reduce our dependence on foreign oil imports, which are more costly than OCS production, and which are insecure sources of supply. The economic benefits from the proposed action thus include the cost savings over imported oil and the benefits of relying on a secure source of supply for a greater proportion of oil consumption.

II. Environmental Impacts

If a decision is made to proceed with accelerated leasing and if subsequent decisions to hold lease sales are made, there will be unavoidable impacts on the environment. These impacts are summarized as follows:

1. Marine Organisms - Marine organisms which are affected from oil and other effluent discharges range from phytoplankton (vegetation) to sea birds and marine mammals. There is little evidence that lasting damage to species populations will occur, but temporary damage will have an effect. The greatest risks are to bird populations, many of which are threatened or endangered.
2. Wetlands and Beaches - Wetlands and beaches will be disturbed by the laying of pipelines and by any accidental oil spills which may reach shore.
3. Air Quality Deterioration - Little air quality deterioration should occur except in the case of an accident such as a fire or an oil spill. This would result in release to the atmosphere of sulfur compounds, smog creating hydrocarbons, and carbon compounds.
4. Interference with Commercial Fishing - Interference would arise from the physical presence of drilling rigs and production platforms and from associated underwater obstructions. In addition, accidental oil spills could contaminate commercial fish species making them unmarketable.
5. Interference with Ship Navigation - As long as ships utilize established fairways, very little interference with navigation should result from oil and gas operations.
6. Damage to Historical and Archeological Sites - If such sites are not detected by required geophysical surveys, they could be damaged by oil and gas operations. In addition, spilled oil could contaminate archeological sites.
7. Degradation of Aesthetic Values - Oil and gas operations could affect aesthetic values due to the visibility of rigs and platforms, noise from operations, or odor from refineries and treatment plants.

3482

8. Socioeconomic Impacts - These are the impacts on coastal economies and populations of offshore oil development. Generally, these impacts would not appear to be particularly significant in regions which are already industrially developed and heavily populated, such as the Middle Atlantic region. On the other hand, for an area such as Alaska, the onshore impacts of offshore oil development will be very noticeable.

The most significant impacts of oil and gas operations would probably result from accidental oil spills. The following table provides a rough idea of the level of expected oil spillage for the OCS areas.

A. High Expected Spills (20,000-50,000 bbl/yr.)

1. Chukchi
2. Beaufort Sea
3. Bering Sea
4. Central and Western Gulf of Mexico, shallow and deep

B. Moderately High Expected Spills (12,000-20,000 bbl/yr.)

1. Southern California, shallow and deep
2. Gulf of Alaska
3. Santa Barbara, shallow and deep

C. Moderate Expected Spills (3,000-12,000 bbl/yr.)

1. Cook Inlet
2. Mafra, shallow and deep
3. Bristol Bay
4. Mid-Atlantic
5. North Atlantic

D. Low Expected Spills (0-3,000 bbl/yr.)

1. Northern and Central California
2. South Atlantic
3. Aluetian Shelf
4. Washington and Oregon

The attached Table (Table 122 reproduced from the EIS) provides information regarding wildlife resources, unique and highly productive areas, fishery resources and aesthetic and recreational resources for each OCS area. The Table is largely self-explanatory. It should be used in conjunction with the expected spill information above to judge the relative significance of environmental impacts of oil spills in each of the OCS areas.

OPTIONS

Option 1: Accelerate Oil and Gas Leasing on the OCS according to the Proposed OCS Planning Schedule.

Under this option the Department of the Interior would proceed to propose

4.
[REDACTED]
3483
six sales for 1975 and six sales per year for the period 1976-1978 according to the attached OCS planning schedule. EIS's would be prepared on each sale and any or all of the sales could be modified or withdrawn by the Secretary.

Option 2: Accelerated Oil and Gas Leasing from OCS Areas in an Order Different from that Indicated in the Proposed Schedule.

The leasing order in the proposed schedule primarily reflects the likelihood that each area will make a significant contribution to our domestic energy supply. Two alternative orderings are suggested in the EIS. These are an ordering to save the environmentally worst areas for last, and an ordering to promote learning about hazards from initial experiences in the frontier areas. Adopting one or the other of these alternative orderings would probably not have significantly different environmental impacts from the proposed schedule. This is because the OCS planning schedule will propose sales in all prospective areas in a relatively short time (within 3 to 4 years). As a result, it is unlikely, though not impossible, that environmental information or technology will change to such a degree that the decision process would result in a different decision to lease or not lease whether the decision were made in 1975 or in 1978.

Option 3: Do Not Adopt an Accelerated OCS Leasing Schedule.

Under this option the Secretary would choose not to accelerate OCS leasing at this time. Any environmental impacts from the accelerated program would be avoided. This option implies that the oil and gas contribution of accelerated leasing would be replaced by increased imports, alternative energy sources or mandatory conservation measures (or some combination of these substitutes).

The implications of each of these alternatives to accelerated leasing are as follows:

Imports - Imports are considerably more costly than OCS produced oil. The costs of imports are currently \$11-\$12 per barrel. The real resource costs of OCS produced oil range from \$1-\$7 per barrel. In addition, for every 100,000 barrels of oil imported by tankers, 16 barrels would be spilled as compared to 9 barrels per 100,000 barrels produced on the OCS.

Alternative Energy Sources - Generally, OCS energy has lower total (production and environmental) costs than any significant non-OCS energy source.

Mandatory Conservation Measures - Mandatory conservation measures could be undertaken as a substitute for OCS produced oil. It is difficult to determine if these measures would be successful. Moreover, reducing imports by mandatory conservation measures has greater social costs, barrel for barrel, than increases in OCS production.

Departmental Views

Departmental comments were received covering the wide range of issues discussed in the PDOD. Departmental views on the central issue of whether to proceed with an accelerated leasing program are summarized below. A complete text of all departmental comments are attached to this decision memorandum.

Land and Water Resources

The Assistant Secretary for Land and Water Resources recommends Option I, accelerate oil and gas leasing on the OCS according to the proposed OCS planning schedule.

Fish, Wildlife and Parks

The Assistant Secretary for Fish, Wildlife and Parks recommends Option II, adopt alternative leasing schedule. Fish, Wildlife and Parks chooses Option II as an interim measure with the hope that the Department ultimately will seek to develop a two-stage leasing system (i.e. separation of exploration from development) as rapidly as possible, while reordering the present accelerated leasing schedule.

Energy and Minerals

The Assistant Secretary for Energy and Minerals recommends Option I, accelerate oil and gas leasing in the OCS according to the Proposed OCS Planning Schedule. In addition, Energy and Minerals states that Option II poses no real problem, but it offers no apparent improvement over the proposed schedule.

Bureau of Land Management

The Director of the Bureau of Land Management recommends Option I, adopt accelerated leasing program as proposed.

Geological Survey

No comment on the options presented in the decision memorandum.

Solicitor

No comment on the options presented in the decision memorandum.

Program Development and Budget

The Assistant Secretary for Program Development and Budget recommends Option I, adopt proposed accelerated lease schedule because it represents the best public policy alternative at this time, in view of our national energy requirements.

Rayston C. Hughes
Rayston C. Hughes

3485

DECISION:

Option 1 (adopt proposed schedule)

Option 2 (adopt altered schedule)

Option 3 (do not accelerate leasing)

Option 4 (other)

Ken E. J. 200

Figure 1:

PROPOSED OCS PLANNING SCHEDULE

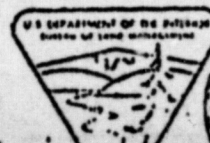
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BSI Baseline Studies Initiated
C Call for Nominations
ND Nominations Due
T Announcement of Tracts
*PLS Last Environmental Statement
PH Public Hearing

Baseline studies scheduled are contingent upon scientific personnel and equipment being available to perform the studies.
Sales are contingent upon technology being available for exploitation and development. A decision whether to bid any of the lease sales listed will not be made until completion of all necessary studies of the environmental impacts and the holding of public hearings, etc.



Ernest R. Berklund

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Table 122, page 1

TABLE 122. AREA BY AREA SUMMARY OF SIGNIFICANT AND POTENTIALLY VULNERABLE RESOURCES

OCS AREA	WILDLIFE RESOURCES			UNIQUE & HIGHLY PRODUCTIVE AREAS		FISHERY RESOURCES 1/		ARTIFICIAL & RECREATION RESOURCES
	birds	marine mammals	other	estuaries	refuge/management areas	commercial	recreational	
North Atlantic	300,000 waterfowl 3.5 to 4 million coastal and seabirds			70% commercially important species use for spawning, nursery, or feeding	56 Governmental areas	1.9 billion pounds; value \$16 million	1.7 million salt water anglers harvested 267 million pounds	All Northeast total recreation days 735,000,000 Swimming--primary; Boating (fishing)--secondary
Mid-Atlantic	836,000 waterfowl over 5 million coastal and seabirds			Large areas and very important to shellfish and waterfowl	Nearly 100	970 million pounds; value \$85 million	1.8 million salt water anglers harvested 246 million pounds	
South Atlantic	157,000 waterfowl. Important bird habitat areas		Various turtles nest on beaches. Several endangered species of turtles	Some 2,650 miles of estuarine and beaches - almost a continuous estuary	17 including some 1.5 million acres	220 million pounds; value \$54 million	1.9 million salt water anglers harvested 404 million pounds	491,000,000 Recreation days; Swimming primary (most in S. Fla. no data)
East & Central Gulf of Mexico	3.4 million waterfowl Louisiana alone; other birds abundant but numbers not known	Florida manatee endangered; bottlenose dolphin most common	Several species of turtles occur including endangered species American	6.3 million acres of open water estuaries plus over 2.5 million acres of tidal marsh Upwards of 90% of commercial fish catch estuarine dependent	5, totaling over 200,000 acres in Louisiana, Florida 13 Federal areas; 30 State; 3 national parks	100 million pounds; value over \$60 million	1.55 million salt water anglers harvested 324 million pounds	Highly used for sport fishing. Several large private except parts of Florida Panhandle and Galveston (heavy use)

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3488

Table 122, page 2

TABLE 122 (cont) AREA BY AREA SUMMARY OF SIGNIFICANT AND POTENTIALLY VULNERABLE RESOURCES

OCS AREA	WILDLIFE RESOURCES			UNIQUE & HIGHLY PRODUCTIVE AREAS		FISHERY RESOURCES 1/		ESTHETIC & RECREATION RESOURCES
	birds	marine mammals	other	estuaries	refuge/management areas	commercial	recreational	
West Coast	400,000 geese .7 to 1.8 million ducks 150,000 coot small breeding populations; brown pelican underseal		Marine turtles some endangered occur; American Alligator endangered common	4.8 million acres; 150,000 acres of oyster reefs. Over 90% of commercial catch estuarine dependent	5 Federal areas totaling 177,000 acres	107 million pounds value \$88 million mostly shrimp and oysters	618,000 salt water anglers harvested 151.6 million pounds	273,000 visitors camping, swimming, sportfishing
Southern California	50,000 water fowl winter 180 species of waterfowl	Abundant 30 species present	Several species of marine turtles occur Important kelp harvest	8,500 acres remain over 90% of original estuaries and wetlands developed 13 areas	Few in number and small in size	161 million pounds value at \$1.6 million; 10 million pounds shellfish valued at \$9 million	Important party boat fishing 4.7 million angler days a year	All California 127,000,000 recreation days at beach only
Santa Barbara	San Southern California for summer Channel Islands and surrounding area for easy access	Large populations of many turtles 150,000 winter porpoises and sea lions for bait sites	Kelp beds 110,000 tons harvested	Few in number and small in size	Channel Island National Monument	30 million pounds value at \$1.9 million (shell fish) 3.4 million pounds value at \$2.2 million	32 party boats carried 50,000 anglers; where fishing also	7,000,000 visitors to State beaches 1977 High value ocean view property
Northern & Central California	300,000 wintered in seasonal communities	sea lions, seals, sea otters, porpoises and whales		100,000 acres remain over 70% of original lost to development	16 Federal & State parks, and national seashore	71 million pounds value at \$14 million 11.3 million pounds shellfish valued at \$4 million	little data except for salmon fishery	

Table 122, page 3

TABLE 122 (cont') AREA BY AREA SUMMARY OF SIGNIFICANT AND POTENTIALLY VULNERABLE RESOURCES

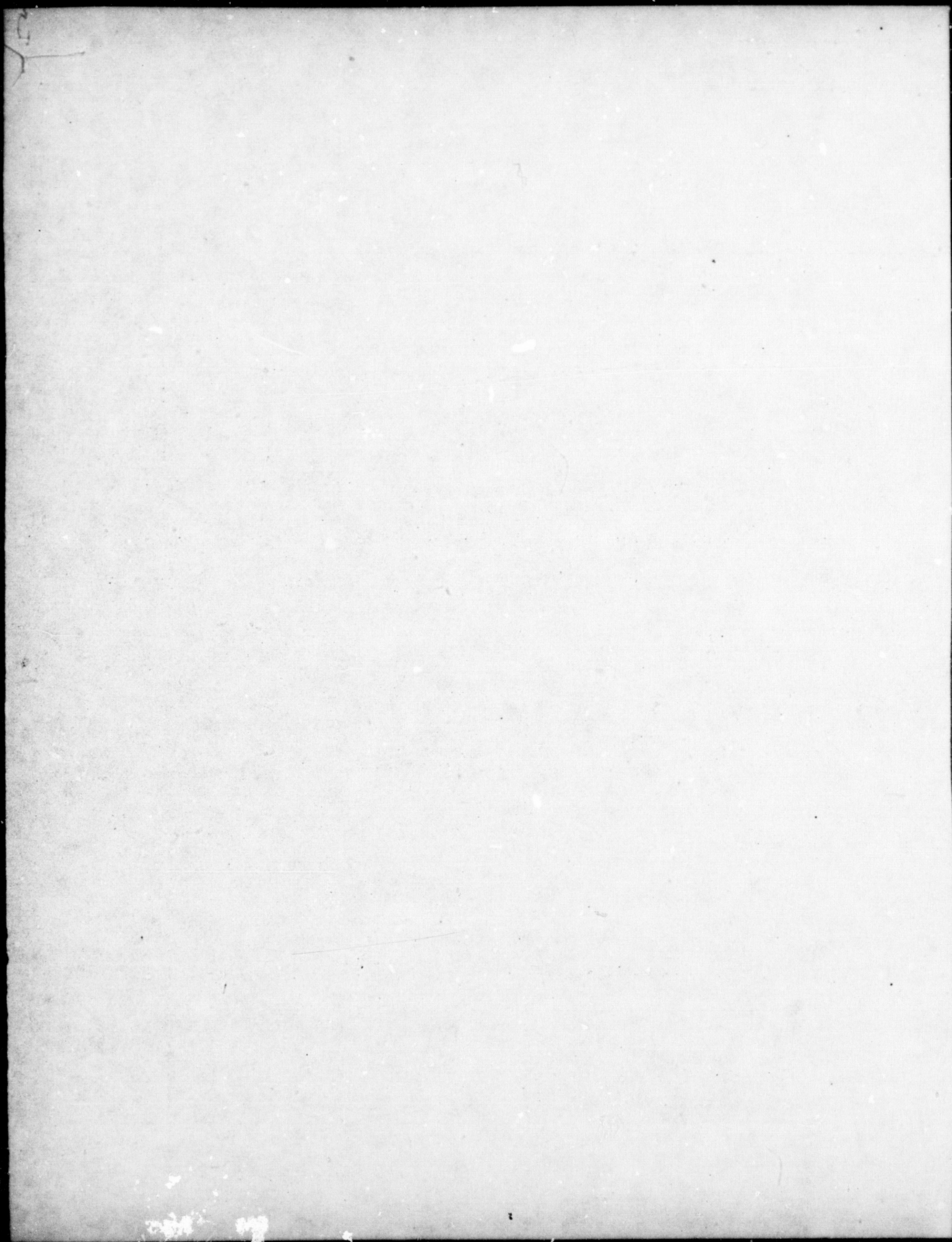
OCS AREA	WILDLIFE RESOURCES			UNIQUE & HIGHLY PRODUCTIVE AREAS		FISHERY RESOURCES		AESTHETIC & RECREATION RESOURCES
	birds	marine mammals	other	estuaries	refuge/manage-ment areas	commercial	recreational	
Washington & Oregon	10 million ducks, 1 million geese use the flyway, 100,000 waterfowl wintered; hundreds of thousands of colonial seabirds. 480,000 annual seabird production	Seals, sea lions, one sea otter area, whales.	Kelp beds important habitat subtidal rocks and banks	Oregon 14 totaling 56,000 acres Washington 2 large areas, Willapa Bay and Grays Harbor, Puget Sound 1.6 million surface acres	Oregon Islands National Wildlife Refuge - 29 islands totaling 367 acres, other areas as well	168 million pounds valued at \$36 million salmon. 46 million pounds shellfish valued at \$12.7 million	Poor data, salmon most important with 1.7 million fish taken, clamming & crabbing also important	170,000,000 visitors Camping, boating, fishing, swimming
Gulf of Alaska	Very important waterfowl area millions of waterfowl 10's of millions of other birds many endangered species	Sea otters 5,000 sea lions 46,000 harbor seals 15,000 to 20,000 northern fur seal 50,000 during spring migration 20 species of cetacean		Extensive, complex and important to commercial fisheries, birds, marine mammals and other wildlife	Three areas in southeast area	152 million pounds valued at \$39 million; shellfish 29 million pounds valued at \$5 million	NOT DISCUSSED	5,500,000 recreation visits for Gulf of Alaska and Cook Inlet
Cook Inlet	Very important area counts of populations not provided for entire area	1,000 sea otter 1,000 harbor seal, 10,000 sea lions, 400 beluga whales	Coastal area support moderate populations of bald eagles and peregrine falcons	All of Cook Inlet 15 mi estuary	Tuxedni and the Kenai National Moose Range	21.5 million pounds of salmon, 7.2 million pounds shellfish valued at \$5 million	Intensively utilized by residents of Anchorage	

Table 122, page 4

TABLE 122 (cont.) AREA BY AREA SUMMARY OF DOMINANT AND POTENTIALLY VULNERABLE RESOURCES

CCS AREA	WILDLIFE RESOURCES			UNIQUE & HIGHLY PROTECTIVE AREAS		ESTIMATED VALUE		REMARKS
	birds	marine mammals	other	estuaries	refuge/marriage-ment areas	commercial	recreational	
Southern Aleutian Shelf (Kodiak)	Not within a major water fowl flyway 200,000 wintering waterfowl. Adequate sea bird data not available.	4,000 sea otters; 37,000 sea lions; 15,000 harbor seals.	Kodiak Brown bear	NOT DISCUSSED	5 national wildlife refuges totalling 4.8 million acres	113 million pounds valued at \$29 million of crab, shrimp, and salmon other bottom fish also abundant.	NOT DISCUSSED	
Eristol Bay & Bering Sea Shelf	One of the great bird concentration complexes of the world. Tens of millions of seabirds, millions of waterfowl. A major portion of the entire population of many species on St. George Island. 3x10 ⁷ least auklets.	Pribilof Island fur seal herd of about 1.5 million; Stella sea lions over 35,000; harbor seals 10,000 to 20,000; walrus 15.7 to 34.4 thousands several species of whales.	The waters of Bristol Bay constitute one of the most biologically productive areas in the world. Nunivak Island only muskox herd in the U.S.	Izenbek Lagoon millions of birds	7 national wildlife refuge totalling 1.6 million acres	Billions of pounds in foreign fisheries - Bristol Bay salmon, 50 million fish worth \$20 million. Also fur seal harvest.	Some sport fishing for salmon, trout and grayling.	All north west

3480



UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

3491

In Reply Refer To:
FWS/OBS

SEP 23 1975

Memorandum

To: Assistant Secretary-Program Development and Budget
From: Assistant Secretary for Fish and Wildlife and Parks
Subject: Comments on PDDB on the Proposal to Accelerate Oil and Gas Leasing on the Outer Continental Shelf

We recognize the need for an accelerated leasing program in order to assist in meeting national energy needs, and our recommendations with respect to the proposed program to accelerate leasing on the Outer Continental Shelf are developed within that context.

The option we favor is discussed on pages 32-34 of the PDDB, but not presented in the Decision Memorandum. The option involves the separation of exploration and development. This so-called "two stage" leasing will afford us the best opportunity to balance development of energy resources with environmental protection.

We recognize that adoption of a leasing system which follows this "two-stage" approach would require new legislation and could not be implemented immediately. Perhaps a turn in this direction is not too far away legislatively. While S.521 does not go this far in its provisions, such a trend does appear to be implicit in the language of the bill.

As an interim measure, we would recommend option 2 in the Decision Memorandum. We cannot agree with the premise that is expressed on page 4 that it is unlikely that environmental information or technology will change to such a degree that an improved decision process would result from considering the environmentally worst areas last. As you know, major investments are being made in gathering OCS environmental data, increased experience is being gained with operations in deep water and other hazardous areas, and given the lead time between exploration

PB-092401

3482.

and development, we think it is quite possible that improved environmental stipulations and provisions could be developed in a schedule such as envisioned in this option. With particular regard for rural Alaska, we see either approach as affording the Department more time to prepare for the cultural shock which the onshore impacts of OCS development are sure to bring to these technologically depressed areas. Because of ANCSA all of the Bureaus under this office have much at stake in these areas.

Therefore, we would recommend the Department seek to develop a two-stage leasing system as rapidly as possible, while reordering the present accelerated leasing schedule as an interim measure. We should also point out that if a two-stage leasing program were developed, reordering of the leasing schedule would become less important. Exploration could proceed in all areas, including those to be considered most environmentally hazardous, since the timing of development could be adjusted somewhat among areas based upon the findings of the exploratory program and other factors.

These comments also reflect the views of the Fish and Wildlife Service.

William Z. ...

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

3493

SEP 23 1975

Memorandum

To: Assistant Secretary-Program Development and Budget
From: *Jackie Carson*
Assistant Secretary--Energy and Minerals
Subject: Decisions on Proposal to Accelerate Oil and Gas Leasing
on the OCS

I have reviewed your draft memorandum to the Acting Secretary along with a copy of the Programmatic PDOD on the OCS Accelerated Leasing Program. I support Option 1 as outlined in your draft memorandum calling for acceleration of oil and gas leasing according to the proposed OCS Planning Schedule. While adopting a different order or sequence as provided for in Option 2 poses no real problem, it offers no apparent improvement over the presently proposed schedule and order.

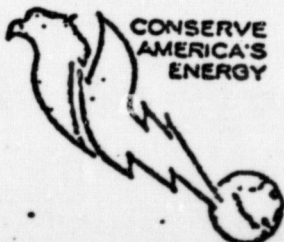
Certain specific changes and modifications should be made in the Programmatic PDOD to reflect decisions made by the Acting Secretary on September 19, 1975.

Of the options given in the PDOD, I support Option I (adopt accelerated leasing proposal). After review and comment we should move to adopt proposed regulations providing for State review of development plans (Option 8) as well as those regulations calling for information to the States. Plans should also be made at an early date to develop the supplementary order with State and industry input.

I support Option 9 calling for adoption of the new data disclosure regulations, modified to reflect decisions made by the Acting Secretary on September 19, 1975.

The present stratigraphic drilling program, conducted by private enterprise, should continue (Option 11); the program could be modified to include on structure as well as off structure drilling, but should not be conducted by the government.

Bidding alternatives should be applied initially on an experimental basis. Most viable immediate option would be raising the royalty rate to a level of 25 to 40 percent.



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Save Energy and You Serve America!

11-0724

3494

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

SEP 22 1975

Memorandum

To: Acting Secretary

From: Deputy Assistant Secretary - Land and Water Resources

Subject: Proposal to Accelerate Oil and Gas Leasing on the OCS

Of the four options outlined in the memorandum from the Assistant Secretary - Program Development and Budget dated September 18, we recommend that you adopt Option I, Accelerate Oil and Gas Leasing on the OCS according to the proposed OCS planning schedule.



78-072304



United States Department of the Interior

1791

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

SEP 24 1975

3495

Memorandum

To: Assistant Secretary, Program Development and Budget

Doyle

Through: Assistant Secretary, Land and Water Resources

From: Director, Bureau of Land Management

Subject: Comments on Program Decision Option Document (PDOD)
for Accelerated Outer Continental Shelf (OCS) Leasing

In response to your memorandum of September 18, 1975, we have reviewed the PDOD for Accelerated OCS Leasing and we present the following recommendations.

We recommend adoption of the accelerated leasing program as proposed. This is presented in the PDOD as Option 1. We are not in favor of the other alternatives to the proposal involving delay or modification and presented as Options 3 to 8.

Regarding data disclosure, we favor Option 9: Adopt proposed new data disclosure regulations, but we caution that the proposed six-month period for disclosure is too short. We suggest a longer term disclosure. Additionally, we favor continuance of the present stratigraphic drilling program (Option 11); and we recommend that the current bonus bidding with 16-2/3 royalty system be maintained (Option 13).

Ernest F. Berland



3493

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

SEP 24 1975

Memorandum

To: Assistant Secretary--Program Development and Budget
Deputy
Through: Assistant Secretary--Energy and Minerals
From: Director, Geological Survey
Subject: Review of the Decision Memorandum and Program Decision
Option Document (PDOD) on the proposal to accelerate
oil and gas leasing on the OCS

SEP 24 1975

Enclosed please find our comments on both the subject Decision
Memorandum and the accompanying PDOD.

D. E. McKelvey

Director

Enclosures (2)
Comments on Decision Memorandum
Comments on PDOD



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COMMENTS ON DECISION MEMORANDUM FOR PROPOSED
ACCELERATION OF OIL AND GAS LEASING ON THE OCS

3487

1. Page 3 -- Lines 9 and 10 - Suggest sentence be reworded as follows: "The following table provides a rough estimate of oil spillage that might occur in the various OCS areas."
2. Page 3 -- Suggest that the word "expected" following A, B, C, and D be changed to "projected."
3. Page 4 -- Line 1 - Should read: "An average of six sales per year for the period 1975-1978." (With the Cook Inlet sale now scheduled for 1976, there will be five in 1975 and seven in 1976, barring further changes.)

3423

1. Page 1 -- The statement with respect to the number of sales should read: "An average of 10 sales per year for the period 1975-1978." (With the first sale now scheduled for 1976, there will be five in 1975 and seven in 1976, barring further changes.)
2. Pages 4-5 -- Since the estimates of \$1.00 - \$7.00 per barrel are from a 1974 study, they may not reflect recent inflationary trends. La Rue, Moore and Schaffer, in a May 1, 1975, report, estimate the cost of new oil (WELL HEAD PRICE), both onshore and offshore, to be: 1972 - \$7.36; 1973 - \$8.70; and 1974 - \$12.84. Obviously these do not represent "real resource costs," but they do indicate inflationary trends.
3. Page 8 -- Shale oil production of \$2.00 per barrel is low, based upon recent indications that inflation has pushed the cost up to the \$11.00 - \$13.00 per barrel.
4. Page 11 -- First paragraph - While the statement with regard to mandatory conservation measures expresses the classical economic viewpoint, it ignores the fact that others consider this finite resource of higher future use as a source of petrochemicals, rather than as a fuel to be consumed in its entirety now.
5. Page 12 -- Suggest addition of the following to the end of the first paragraph: "Furthermore, natural gas associated with oil will be produced as a consequence of increased oil production."
6. Page 16 -- General Unavoidable Impacts covers the effects, but unavoidable causes are not discussed. Although site specific studies of geologic hazards at future well locations will be conducted, there is almost a certainty of accidents, such as from earthquakes, high pressure gas and bottom sediment problems.
7. Pages 36-40 -- This section on G&G data disclosure confuses disclosure provisions for data obtained by permit, pre-lease, with disclosure provisions for data obtained under lease.
8. Page 36 -- Second sentence under (1) G&G data disclosure: Geological data obtained under pre-lease permits are not released, but geological data obtained under leases are released upon termination of the lease in contrast to the statement that "this data is never made public by USGS."
9. Page 36 -- Last paragraph - Both geophysical and geological data obtained under pre-lease permits would be made available publicly after ten years. (The six months applied only to geological data acquired on leases. This period we understand has now been set at two years rather than six months.)

- Page 37 -- Suggest the word "appropriate" be used rather than "correct" preceding the word "incentives" on lines one and five (also on line six from the bottom of page 39). 3429
- Page 38 -- Line 6 - Suggest "reluctant" instead of "recalcitrant."
12. Page 40 -- 1. New regulation: Reword as follows to agree with proposed regulations: "Public release of geophysical data ten years after issuance of the permit or submission under a lease, whether gathered under a pre-lease permit or on a lease; immediate availability upon request to USGS. (Geophysical data acquired on a lease also becomes available upon termination of the lease.)"
13. Page 40 -- 2. New regulation: Reword as follows to agree with proposed regulations: "Public release of geologic data two years after submission, for data obtained on leases; ten years after issuance of a permit for data obtained pre-lease except deep stratigraphic drilling; five years after completion of a deep stratigraphic test, or 60 calendar days after the issuance of the first Federal lease within 50 geographic miles of the drill site, whichever is earliest. (This assumes decision has been made to change the disclosure provision from six months to two years for geologic data collected on leases.)"
14. Page 41 -- Last sentence - Suggest sentence be reworded as follows: "Holes are probably additional to those that would be drilled later in actual lease exploration." (Off-structure deep tests could be drilled to test stratigraphic trap possibilities or simply to acquire information on a more complete stratigraphic section than is available "on-structure." Such tests would constitute "actual exploration" and not be duplicative of subsequent on-structure tests)
15. Page 42 -- First paragraph - While it is true that both on-structure and off-structure tests may produce substantially the same information, it is more likely that an off-structure test will provide information on a less disturbed and more complete stratigraphic section.
16. Page 43 -- First paragraph - One can argue that the incentive for companies to drill pre-sale holes is appropriate inasmuch as the reduction of uncertainty will improve their bidding posture. Much of the benefit of pre-lease drilling is therefore captured by companies doing the drilling and not necessarily by Government in the form of higher bids for leases. This would only hold true if the drilling results indicated more favorable conditions than could have been visualized without the drill-hole information. The south Texas deep strat tests for example had a negative effect on bonus bidding in terms of higher bonus bids. If a deep strat test had been drilled in the MAFLA area it appears likely that bonus bids would have been reduced based on subsequent drilling results. The benefits of pre-lease drilling can accrue to either the Government or the companies depending on the results of a

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given test. In either case the elimination of uncertainty as a result of such tests may result in an overall National benefit.

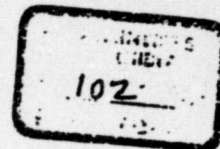
7. Page 48 -- The option's with regard to stratigraphic drilling programs could be expanded to include the possibility of on-structure as well as off-structure drilling programs by industry as an intermediate option between options No. 11 and 12.

3501



UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SOLICITOR
WASHINGTON, D.C. 20240

July 19, 1976



Cyril Hyman, Esquire
Assistant United States Attorney
Eastern District of New York
225 Cadman Plaza East
Brooklyn, New York 11201

Dear Mr. Hyman:

This responds to your request for information relative to the Secretary's decision to proceed with Outer Continental Shelf oil and gas lease sale number 40, pursuant to the Judge's instructions at the hearing on June 30, 1976 in the case entitled County of Suffolk, et al. v. Secretary of the Interior, et al., Civil No. 75-C-208 (U.S.D.C., E.D.N.Y.). When the Secretary made that decision, he had the following documents to rely on:

1. Final Environmental Statement -- received by the Secretary on June 22, 1976.
2. Program Decision Option Document -- received by the Secretary on June 22, 1976.
3. Memorandum from the Assistant Secretary, Program Development and Budget, on higher royalty rates -- received by the Secretary on June 25, 1976.
4. Decision memoranda from the Assistant Secretary, Program Development and Budget, including as attachments the recommendations of:
 - a) Director, Bureau of Land Management
 - b) Assistant Secretary, Energy and Minerals
 - c) Acting Deputy Director, Fish and Wildlife Service, and Assistant Secretary, Fish and Wildlife and Parks.



- d) Deputy Assistant Secretary, Management.
- e) Associate Director, Park System Management, and Assistant Secretary, Fish and Wildlife and Parks.
- f) Acting Assistant Secretary, Land and Water Resources.
- g) Assistant Secretary, Program Development and Budget.
- h) Director, Geological Survey.

The Secretary received the decision memoranda on June 22, 1976.

5. Memorandum from the Acting Director, Geological Survey, on potential geologic hazards -- received by the Secretary on June 25, 1976.

In addition, on June 28, 1976, a briefing was held for the Secretary on issues covered in the Program Decision Option Document, and the Final Environmental Statement on proposed sale 40. Robert Lawton, Chief, Division of Minerals Policy and Development, Bureau of Land Management, conducted the briefing. There was a general discussion of the issues by those attending the briefing. In addition to Secretary K.eppe, those in attendance were:

1. H. Gregory Austin, Solicitor.
2. Nat P. Reed, Assistant Secretary, Fish and Wildlife and Parks.
3. Ronald C. Coleman, Assistant Secretary, Program Development and Budget.
4. James Gill, Deputy Assistant Secretary, Energy and Minerals.
5. Chris Farrand, Deputy Assistant Secretary, Land and Water Resources.

6. Al Powers, Director, Office of Outer Continental Shelf Program.
7. W.A. Radlinski, Associate Director, U.S. Geologic Survey.
8. Loren J. Rivard, Executive Assistant to the Secretary.
9. Allan L. Reynolds, Director, Audit and Investigation.
10. Sam Marler, Deputy Director, Public Affairs.
11. William Moffat, Director, Office of Policy Analysis, Program Development and Budget.
12. Roger Sindelar, Assistant to the Under Secretary.
13. Edward Risley, Executive Secretariat staff.
14. Members of U.S. Geologic Survey and Bureau of Land Management staffs.

No issues, other than those contained in the above-referenced documents, were discussed.

LAWRENCE R. HOESE

Lawrence R. Hoese
Attorney
Division of Energy and Resources

cc:
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3534

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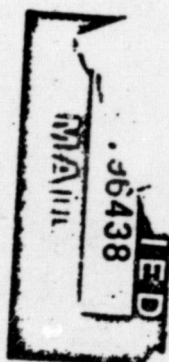
UNITED STATES
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July 19, 1976



UNITED STATES
DEPARTMENT OF THE INTERIOR
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information relative to the
with Outer Continental Shelf oil and
to the Judge's instructions in
the case entitled County of Suffolk
or, et al., Civil No. 75-C-208
secretary made that decision, he
ly on:

Statement -- received
June 22, 1976.

tion Document -- received
June 22, 1976.

Assistant Secretary,
and Budget, on higher
ceived by the Secretary

from the Assistant Secretary,
and Budget, including as
commendations of:

Director of Land Management.

Secretary, Energy and Minerals

Director, Fish and Wildlife
Assistant Secretary, Fish and
arks.

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Joseph J. Zedrosser, Esquire
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 14 Washington, D. C. 20530
 15 (202) 739-2775

16 Attorneys for Defendants

17 UNITED STATES DISTRICT COURT
 18 CENTRAL DISTRICT OF CALIFORNIA

19 PEOPLE OF THE STATE OF CALIFORNIA,
 20 ex rel., EVELLE J. YOUNGER, ATTORNEY
 21 GENERAL; etc., et al.,

22 Plaintiffs,

23 ROGERS C. B. MORTON in his official
 24 capacity as SECRETARY OF THE DEPART-
 25 MENT OF THE INTERIOR; etc., et al.,

26 Defendants.

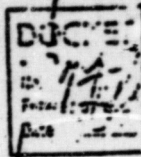
27 DEFENDANTS' ANSWERS TO PLAINTIFFS'

28 THIRD SET OF INTERROGATORIES

29 INTERROGATORY NO. 1

30 From January 1972 to April 18, 1973, did you or any employee
 31 or agent of the Department of the Interior make, directly or indirectly
 32 to then President Nixon or to any member of his staff or of the
 executive office of the Presidency, any recommendation or proposal
 concerning accelerated or increased outer continental shelf oil and
 gas development or leasing?

ORIGINAL



OF COUNSEL:
 GARY BOHLKE
 JACK HUGHES
 Attorneys, Department
 of the Interior
 Washington, D. C.
 20240

FILED

JUL 15 1975

CLERK, U. S. DISTRICT COURT
 CENTRAL DISTRICT OF CALIFORNIA
 DEPUTY



NO. 74-2374-DWW CIVIL

EXHIBIT A

1 ANSWER

2 No; the submissions that may have been made to the President
3 his staff, or the executive office of the President were not formal
4 departmental recommendations or proposals, but rather, informal sub-
5 missions. [This qualification applies to this and all subsequent
6 interrogatories.]

7 INTERROGATORY NO. 2

8 If the answer to the preceding interrogatory is in the
9 affirmative, answer the following:

10 (a) Identify each persons who made each such recommendation
11 or proposal.

12 ANSWER

13 Informal submissions were made by the following persons:
14 Rogers C. B. Morton, Secretary of the Interior; John C. Whitaker,
15 Under-Secretary; Kenneth L. Lay, Deputy Under-Secretary; Stephen
16 Wakefield, Assistant Secretary of the Interior.

17 (b) When was each such recommendation or proposal made?

18 ANSWER

19 (Between early January 1973 and April 18, 1973.)

20 (c) State specifically the content of each such recommenda-
21 tion or proposal.

22 ANSWER

23 Informal submissions to accelerate OCS oil and gas leasing to
24 three million acres per year for a five year period beginning in 1973.

25 (d) Identify each person to whom each such recommendation or
26 proposal was made.

27 ANSWER

28 Peter Flanagan, Assistant to the President for Domestic Affairs;
29 John Schaefer, Assistant to Mr. Flanagan; James Atkins, Assistant to Mr.
30 Flanagan.
31
32

(e) State all reasons for making each such recommendation or proposal.

ANSWER

Employees of the Department believed that because of the decline in domestic production and the increase in imports of foreign oil, an accelerated OCS leasing program could aid in reversing this situation, and this would be in the national interest. The individuals identified in paragraph (a) hereof believe that we should not be too reliant on foreign imports. The Gulf of Mexico OCS area had been extensively leased over the years so that any acceleration would mean leasing in new areas.

(2) If any such recommendation or proposal was made at a meeting or briefing, give the date and location of each meeting, identify all persons present at the meeting and identify any documents pertaining to each such meeting and the person who presently has custody of each such document.

ANSWER

Meetings were held but the individuals identified in paragraph (a) hereof do not recall any exact dates except that the meetings occurred during the period referred to in paragraph (b) hereof.

(g) If any such recommendation or proposal was made by way of a document, identify the document and the person who presently has custody of such document.

ANSWER

Informal submissions were supported by an opinion document dated January 1973, entitled "Report of the Outer Continental Shelf Task Force", the custodian of Secretary's files has custody.

INTERROGATORY NO. 1

11/72 to April 1973

From April 19, 1973, to January 23, 1974, did you or any employee of the Department of the Interior make, directly or indirectly, to

1 then President Nixon or to any member of his staff or of the executive
2 office of the Presidency, any recommendation or proposal concerning
3 accelerated or increased outer continental shelf oil and gas development or
4 leasing?

5 ANSWER

6 No; see response to interrogatory 1.

7 INTERROGATORY NO. 4

8 If the answer to the preceding interrogatory is in the
9 affirmative, answer the following questions:

10 (a) Identify each person who made each such recommendation or
11 proposal.

12 ANSWER

13 Rogers C. B. Morton, Secretary of the Interior; John C. Whitaker,
14 Under-Secretary; William Vogely, Director, Office of Economic Analysis,
15 Office of the Assistant Secretary for Program Development and Budget; Darius
16 Gaskins, Staff Analyst, Office of Economic Analysis.

17 (b) When was each such recommendation or proposal made?

18 ANSWER

19 January 19, 1974.

20 (c) State specifically the content of each such recommendation
21 or proposal.

22 ANSWER

23 Informal submissions to accelerate OCS leasing to ten million acres
24 per year for the five year period beginning in 1975.

25 (d) Identify each person to whom each such recommendation or
26 proposal was made.

27 ANSWER

28 Roy Ash, Director, Office of Management and Budget; William Simon,
29 Administrator Federal Energy Administration.

30 (e) State all reasons for making each such recommendation or
31 proposal.

32

3510

ANSWER

The persons identified in paragraph (a) hereof believe that the planned leasing rate at that time of three million acres per year was too low for the following reasons:

1. The need for more domestic oil is clear from a rising world prices, shortages, and the desirability of insurance against cutoffs of imports;
2. There is general agreement that the OCS, along with the North Slope Alaska is the best known domestic source of oil and gas; and for the discovery of new fields containing hydrocarbons and
3. High bonus bids on recent OCS lease sales and on the first oil shale leases, are evidence that the excess of the value of these resources over production costs is rising.

(f) If any such recommendation or proposal was made at a meeting or briefing, give the date and location of the meeting, identify all persons present at the meeting and identify any documents pertaining to such meeting and the person who presently has custody of each such document.

ANSWER

January 19, 1974 at the Office of the Director, Office of Management and Budget. Persons in attendance were those persons identified in paragraph (a) and paragraph (d) hereof. The document entitled "Accelerated Leasing of the OCS" pertained to the meeting and is in the official custody of the Under Secretary of the Interior.

(g) If any such recommendation or proposal was made by way of a document, identify the document and the person who presently has custody of such document.

ANSWER

1. Memorandum of January 11, 1974, from Acting Deputy Assistant Secretary - Program Development and Budget to Under-Secretary, subject: accelerated OCS-leasing transmitting a paper entitled "Acceleration of OCS Leasing".

2. Document prepared January 17, 1974, by William Moffet and Darius Gaskins, Office of Economic Analysis, Office of Assistant Secretary for Program Development and Budget, entitled "The Case for Accelerated OCS Leasing".

INTERROGATORY NO. 5

From January 1, 1970 to the present, did you or any employee or agent of the Department of the Interior make, directly or indirectly, to former President Nixon or to President Ford or to any member of their staffs or of the executive office of the Presidency, any recommendation or proposal concerning oil and gas development or leasing on the southern California outer continental shelf?

ANSWER

No; see response to interrogatory 1.

INTERROGATORY NO. 6

If the answer to the preceding interrogatory is in the affirmative, answer the following questions:

(a) Identify each person who made each such recommendation or proposal.

ANSWER

Same persons as identified in answer to Interrogatory no's. 2(a) and 4(a).

(b) When was each such recommendation or proposal made?

ANSWER

Between early January, 1973 and April 18, 1973 and on January 19, 1974.

(c) State specifically the content of each such recommendation or proposal.

ANSWER

Informal submissions to include possible southern California sale as part of submissions to accelerate OCS leasing to three million acres per year in 1973, and a later proposal to accelerate OCS leasing to 10 million acres in 1974.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

3512

28 JUN 1976

OFFICE OF THE
ADMINISTRATOR

Mr. Curtis J. Berklund, Director
Bureau of Land Management
U.S. Department of the Interior
Washington, D.C. 20240

Dear Mr. Berklund:

The Environmental Protection Agency, in accordance with its responsibilities under the National Environmental Policy Act and Section 309 of the Clean Air Act, has reviewed the final environmental impact statement on the Proposed Outer Continental Shelf Oil and Gas Lease Sale Offshore the Mid Atlantic States (#40). Although we believe that the Bureau has been generally responsive to most of our comments on the draft, we still have environmental reservations concerning the proposed activity.

Our operational concerns remain regarding potential conflicts between heavy vessel traffic and production platforms, and with structural problems imposed by shifting sediments on platforms and pipelines. Intensive use of the area for shipping in the absence of official traffic lanes through the proposed lease area is a significant unresolved problem. Additionally, the probability of accidental oil discharge due to damage of exposed pipelines (sometimes from dragged anchors or from trawl doors) is acknowledged in the statement to be significant. Our concern about these hazards would be lessened by the definite imposition of lease stipulations that would require special preventive measures. However, the protective requirements listed in the environmental statement are in some cases vague and discretionary. Furthermore, these stipulations are described as being "possible stipulations that may be applied." EPA urges the application of binding definitive stipulations to provide environmental protection regarding 1) pipeline burial to a specific minimum depth; 2) continuous surveillance of pipelines to assure correction of pipeline exposure due to sediment scour and to detect oil leakage; 3) ordnance detection and appropriate remedial action; 4) prohibition of structures in the vicinity of fairways;

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JUN 30 1976

DEPT. OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

- 5) development and installation of remote and in situ oil detection sensors;
- 6) identification and avoidance of environmentally sensitive areas; and
- 7) utilization of pipeline corridors. We understand that draft stipulations will be made available for State review 45 days before the sale. We also request advance copies of these draft stipulations and offer our assistance in their finalization.

In regard to the form and content of the environmental impact statement, we continue to assert the need for proposing final Operating Orders within the framework of the impact statement, since this is a significant part of the operational controls to be imposed on the activity and is therefore part of the description of the proposed action. Until the relevant controls are specified, it is impossible to judge the adequacy of environmentally protective measures and hence the safety of the proposed action. We again offer our assistance in working with the Geological Survey to expedite timely formulation of Orders, and urge the Survey to proceed in development of Orders for other virgin areas for their inclusion in forthcoming environmental impact statements.

We remain concerned about the lack of detailed information on the secondary (particularly onshore) impacts of developing oil and gas in the Mid-Atlantic area and the specific means by which pipeline location, protection of beaches, parklands and wetlands and protection of groundwater from development activities will be addressed and adverse impacts avoided. We note the Department has issued a proposed Operating Order on Information Concerning Development Plans to Coastal States and plan to issue EPA comments on this proposal. Effective implementation of this Order should assist in planning for development. However, we believe that an early commitment by the Department to prepare an environmental impact statement (EIS) prior to approval of any development plans and in cooperation with the affected States and Federal agencies, such as EPA, is necessary. In the context of this EIS, the Department is again requested to prepare an analysis of the cumulative onshore impacts associated with all anticipated development plans in the area. Preparation of the EIS should be initiated as soon as feasible after exploratory results indicate production will be undertaken.

Thank you for the opportunity to review this statement. Please let us know if we can be of further assistance.

Sincerely yours,

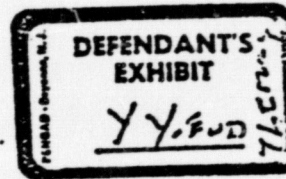
Rebecca W. Hanmer

Rebecca W. Hanmer
Director
Office of Federal Activities
A-104

3514

GEOLOGICAL SURVEY

For release: pm. May 5, 1976



news release

Forrester (703) 860-7444

OFFSHORE DEVELOPMENT NO MAJOR THREAT TO N.Y. STATE

Onshore impacts resulting from petroleum operations on the Atlantic Outer Continental Shelf (OCS) will be minimal as they apply to the State of New York, according to Dr. V. E. McKelvey, Director of the U.S. Geological Survey, Department of the Interior.

In a summary statement today (May 5, 1976) at the New York State Legislature Conference on Energy, Environment, and Economy, Albany, N.Y., McKelvey said the demand for land, facilities, labor, and supporting services related to Atlantic OCS development will likely focus on such areas as central New Jersey; Philadelphia, Pa.; and Norfolk, Va. "The probability of damage to New York beaches from oil spills stemming from offshore production is small," he said.

"New York will of course share in the benefits of any large discoveries of oil and gas which may be made in this area, but it seems unlikely that New York coastal land will be required for any major additional processing or distribution facilities," McKelvey said.

In concluding remarks, McKelvey said, "The risk of a large oil spill is extremely small, though it can never be completely eliminated — but neither can the chance of a much larger spill from a tanker. If substantial amounts of oil are discovered, the substitution of pipelined OCS oil for a part of the oil moved in by tankers would likely result in a net reduction of the risk of oil pollution now being experienced."

The USGS Director based these remarks on the results of a number of recent studies of petroleum development on the Atlantic OCS. Among the studies:

- + OCS Oil and Gas — An Environmental Assessment, by the Council on Environmental Quality, April 1974.
- + Mid-Atlantic Regional Study, made for the American Petroleum Institute by Woodward-Clyde Consultants, Clifton, N.J., October 1975.
- + A Methodology for Siting of Onshore Facilities Associated with OCS Development, by the New England River Basin Commission for the U.S. Geological Survey, 1976.
- + Draft Environmental Impact Statement, Mid-Atlantic Lease Sale No. 40, by the Bureau of Land Management, Department of the Interior, December 1975.

#

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DEPARTMENT of the INTERIOR

3515 news release

Potential Impact of Outer Continental Shelf
Petroleum Development in the New York Coastal Area

By V. E. McKelvey

Director, U. S. Geological Survey

New York State Legislative Conference on Energy,
Environment, and the Economy, Albany, N. Y., May 5, 1976

It is a pleasure to attend this conference and to discuss the potential onshore impact on New York of contemplated petroleum development on the Atlantic Outer Continental Shelf.

Let me begin by saying that the onshore impacts resulting from possible petroleum operations on the Atlantic Outer Continental Shelf probably will be minimal in the State of New York. As we see it, the demand for land, facilities, labor, and supporting services will be focused on other areas, such as the central New Jersey-Philadelphia area and the Norfolk, Virginia area. The probability of damage to New York beaches from oil spills stemming from offshore production is small. New York will of course share in the benefits of any large discoveries of oil and gas which may be made in this area, but it seems unlikely that New York coastal land will be required for any major additional processing or distribution facilities.

These conclusions are based on a number of studies of potential petroleum development on the Atlantic OCS that have been undertaken during the last two years, notably:

OCS Oil and Gas - An Environmental Assessment, by the Council on Environmental Quality, April 1974.

Mid-Atlantic Regional Study, made for the American Petroleum Institute by Woodward-Clyde Consultants of Clifton, New Jersey, October 1975.

A Methodology for Siting of Onshore Facilities Associated with OCS Development, by the New England River Basin Commission for the U. S. Geological Survey.

Draft Environmental Impact Statement, Mid-Atlantic Lease Sale No. 40, by the Bureau of Land Management, Department of the Interior, December 1975.

The Bureau of Land Management has announced its tentative proposal to lease 154 tracts over the Baltimore Canyon Trough subject to the Secretary's decision based on the final environmental impact statement which is due to be released in the near future. The tracts proposed for leasing total 876,750 acres, and lie opposite Atlantic City along an axis approximately 75 miles off southern New Jersey. The northernmost of these tracts is approximately 75 miles south of Long Island.

(more)

The Woodward-Clyde study assumed that the full development of the Baltimore Canyon Trough would involve the leasing of 2.3 million acres, that 25 percent of the tracts would be productive, and that development to peak production of 1.1 million barrels of oil and 8 billion cubic feet of gas per day would require from 12 to 16 years. We consider the Woodward-Clyde estimates of leasing and production activity to be maximum figures, with actual results probably being considerably less. They are useful, however, in postulating maximum impacts that are likely to occur from petroleum development on the Mid-Atlantic OCS.

On the basis of these maximum estimates of petroleum development activity, Woodward-Clyde considered that approximately 2,500 acres of land would be needed to handle the onshore facilities in support of the OCS operations and that it would be located in areas particularly suited to such development; for example, the central New Jersey-Philadelphia area and the Norfolk, Virginia area. The Environmental Impact Statement and CEQ report drew similar conclusions. No additional land was earmarked for northern refineries, since the Mid-Atlantic crude was presumed merely to replace oil in the existing refineries of the New York-Philadelphia area which presently have a capacity of about 1.3 million barrels a day. It is possible that a small amount of New York land might be needed for servicing offshore operations.

Total employment related to Mid-Atlantic OCS petroleum development was estimated by Woodward-Clyde at 28,000 jobs, of which 12,900 would be direct hires and the remainder required by supporting activities.

The bulk of this employment as it would be related to development of the northern sector of Baltimore Canyon Trough, is expected to occur in the industrialized Philadelphia-Camden area, where its impact would be small. Local air pollution problems might arise from high-sulfur gas, if that should be discovered, but this is subject to existing regulations and the impact on New York would be negligible.

The risk of damage from oil spills is probably the only potential undesirable impact of Atlantic OCS petroleum development deserving of the Legislature's consideration, and a review of the oil industry's record of accidents resulting in spills seems an appropriate way to begin a discussion of this possibility. Records kept by the Geological Survey, and the oil spill studies made by the Massachusetts Institute of Technology and the Council on Environmental Quality show that there have been 53 spills of 50 barrels or more during the past decade in OCS operations that involve 18,000 wells. Of these, only four were serious, and only one -- the Santa Barbara spill of 1969 -- brought oil to the beach. The records show that pipeline failures have accounted for only four significant spills in 20 years. The records also show that 96 percent of spills from OCS operations involved less than 24 barrels of oil, and that there has been a marked reduction in the number of OCS spills since 1968, due to improved technology and much stricter regulation.

(more)

Extrapolating from the record, and making allowances for improved safety and control procedures, it seems reasonable to expect that there would be an occasional spill from Mid-Atlantic OCS operations. The probability of such spills affecting New York coastal lands is low, and will depend primarily on the location of the spill and the season involved. The CEQ report estimates the probability of oil reaching Long Island from wells drilled on tracts selected for the upcoming prospective Mid-Atlantic sale to be almost zero in all seasons. For wells which might at some future date be drilled as close as 50 miles to Long Island, the chance of oil spills reaching shore would be 10 percent in the summer, and near zero in the winter. Oil spills from wells which might be drilled on the western edge of the Georges Bank -- a distance of some 90 miles from the eastern tip of Long Island -- are estimated by the CEQ to have a 6 1/2 percent chance of impacting Long Island in the spring months, which present the worst conditions for oil spills in that area.

I should point out that oil which is produced offshore would be a substitute for oil hauled in from other points by tankers, which presently deliver some four million barrels a day of crude oil and products to East Coast ports. If the oil produced on the OCS is pipelined ashore, there would be a proportionate reduction in tanker traffic to these ports, and a consequent reduction in the hazard of spills from tankers, which are much more frequent and generally larger than those from offshore wells. Most ship spills exceed 1,000 barrels and occur within 50 miles of shore. It is possible that the production of a million barrels a day of crude oil and its movement ashore by pipeline would result in a net reduction in pollution from oil reaching the New York pipeline.

To recapitulate, the impact of Atlantic OCS petroleum operations on the State of New York probably would be slight. The risk of a large oil spill is extremely small, though it can never be completely eliminated -- but neither can the chance of a much larger spill from a tanker. If substantial amounts of oil are discovered, the substitution of pipelined OCS oil for a part of the oil moved in by tankers would likely result in a net reduction of the risk of oil pollution now being experienced.

#

I. DESCRIPTION OF THE PROPOSAL

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A. Proposed Federal Action

The proposed Federal action under consideration is the leasing of 154 tracts on the Mid-Atlantic Outer Continental Shelf (OCS), in an area known as the Baltimore Canyon Trough (Figure 1-1). These tracts comprise an area of 876,750 acres. They are being proposed to be leased for the exploration, development, and production of potential oil and gas resources in accordance with Section 8 of the Outer Continental Shelf (OCS) Lands Act (76 Stat. 462; 43 U.S.C.; Sec. 1337) and regulations issued under that statute.

1. Location and Resources

The sale under consideration includes tracts offshore New Jersey and Delaware. The tracts in this proposed sale range from 36.4 meters to 172.9 meters (118 to 571 feet) in water depth and from 54 to 108.5 miles from shore (Visual 1). No tracts include areas in water depths greater than 200 meters.

The U.S. Geological Survey (USGS) estimated in September, 1975, based on proprietary geophysical data, that the undiscovered recoverable resources of the 154 tracts included in the proposed lease sale area range from 0.4 to 1.4 billion barrels of oil and 2.6 to 9.4 trillion cubic feet of gas.

¹

The tracts are summarized by water depth and distance from shore in the first two columns of Appendix 10.

3. Coal

a. Description

Coal is the most abundant energy resource in the United States. Coal deposits underlying nearly 460,000 square miles in 37 States constitute one-quarter of the known world supply and account for 80 percent of our proven fuel reserves. Proved reserves of coal contain 125 times the energy consumed in 1970. A detailed discussion of the coal resource system can be found in Chapter 1 of Energy Alternatives: A Comparative Analysis.

3519

To replace the energy expected to be realized from the proposed Mid-Atlantic sale, 8 to 46 million tons of coal per year would be necessary. Though domestic reserves could easily provide this quantity, serious limitations to coal development exist. In many uses, particularly in the Mid-Atlantic area, coal is an imperfect substitute for oil or natural gas. In many other cases, coal use and production is restricted by government constraints, limited availability of low sulfur deposits, inadequate mining, conversion, and pollution abatement technology, and the hazardous environmental impacts associated with coal extraction and electricity generated from coal. Coal production is also threatened by the unique set of labor problems associated with mining and new strict standards for coal mine safety.

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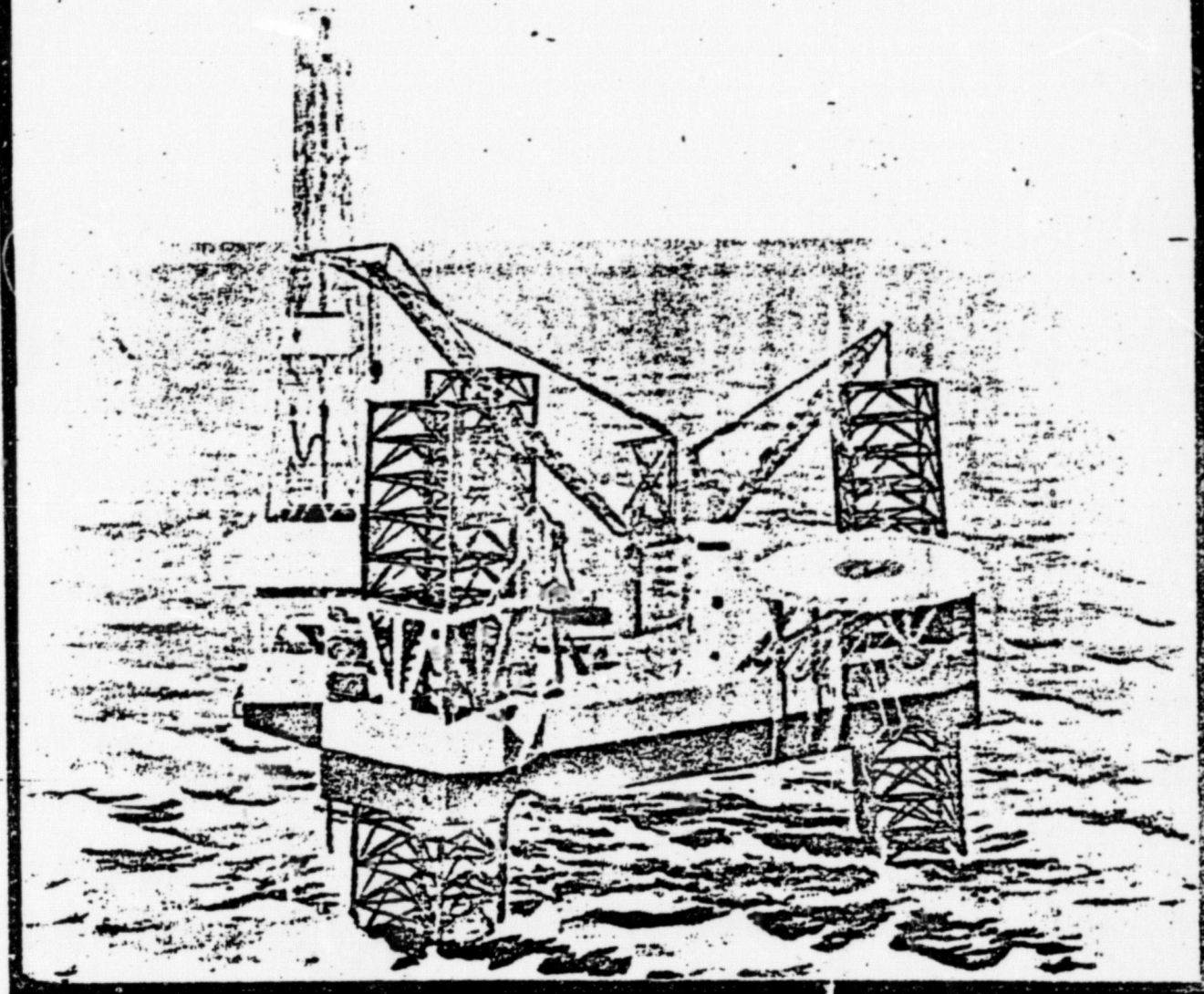
Although U.S. coal resources are very large, as with other extractable mineral fuels, there is some geographic dislocation. Most of our coal is found west of the Mississippi River far from the concentrated industrial areas of the Mid-Atlantic. Also, much of the western coal is in arid or semi-arid areas where scarcity of water could constrain development.

The portion of the demonstrated reserve base that is available for use depends on whether the coal deposit can legally be mined, and if it can, whether it is suited for underground or surface mining. Surface mines may recover up to 90% of the coal in a given mine; underground mines 50 to 60% using room and pillar methods. However, statistics indicate that at the 1972 price only 12% of the total resource could be considered economically recoverable. As with other extractable hydrocarbons, the quantity of available coal is a function of coal's market price. Current increases in the market price for coal are making more of this resource base available for domestic consumption.

b. Environmental Impact

Coal Utilization

Combustion of coal results in various emissions, notably SO^2 and particulates. If the expected production from this sale is replaced by coal, there will be an increase in these pollutants, especially if coal is substituted for the natural gas. Technology to



Source: Tetra Tech, Inc., 1973, "The Effect of Natural Phenomena on OCS Gas and Oil Development," prepared for the Council on Environmental Quality under contract No. EQ4AC010.

Figure 4-2. A Jackup or Self-Elevating Drilling Platform

pipe or a riser, depending on the type of platform used. Drilling methods and much of the equipment are identical to those used onshore.

Exploratory drilling is one of the most hazardous steps in developing offshore oil and gas. The potential

hazard stems from the possibility of a blowout—the sudden surge of oil or gas pressure up the drill hole causing loss of control over the well. Although most blowouts involve only gas, large quantities of oil may be released to pollute the marine environment. If

TABLE A-1/

Skagit/Whatcom Counties Social Infrastructure Impacts

3522

	1970	1985				2000			
		Base Case 1	Base Case 2 ¹	Increase		Base Case 1	Base Case 2 ¹	Increase	
				High development	Low development			High development	Low development
Population (thousands)	134	150	—	22	12	188	—	31	12
Percent change			—	15	8		—	16	6
Physical systems									
Water demand (million gallons per day)	19	25	—	4	2	36	—	6	2
Electricity demand (megawatt capacity)	NA	NA	—	41	26	14A	—	531	178
Structures									
Residential (thousands)	49	54	—	8	4	68	—	11	4
Commercial (million square feet)	3.6	3.9	—	.6	.3	5.2	—	.9	.3
Social systems									
Schools — enrollees (thousands)	32	35	—	6	3	45	—	7	3
Hospitals — beds	453	507	—	74	41	635	—	105	41
Police — manpower	201	270	—	40	22	338	—	56	22
Solid waste (tons per day)	402	450	—	66	36	564	—	93	36
Sewage (million gallons per day)	16	18	—	3	1	23	—	4	1
Government overhead (\$ million)	NA	12	—	2	1	15	—	2	1
Business and government institutions									
Business services — employees (thousands)	NA	NA	—	NA	NA	NA	—	NA	NA
Government employees (thousands)	4	4.6	—	.6	.3	5.5	—	.9	.3

¹ There is no Base Case 2.

Source: Resource Planning Associates, Inc., and David M. Dornbusch & Co., 1974, "Potential Onshore Effects of Oil and Gas Production on the Atlantic and Gulf of Alaska Outer Continental Shelves," prepared for the Council on Environmental Quality under contract No. EQ4AC002.

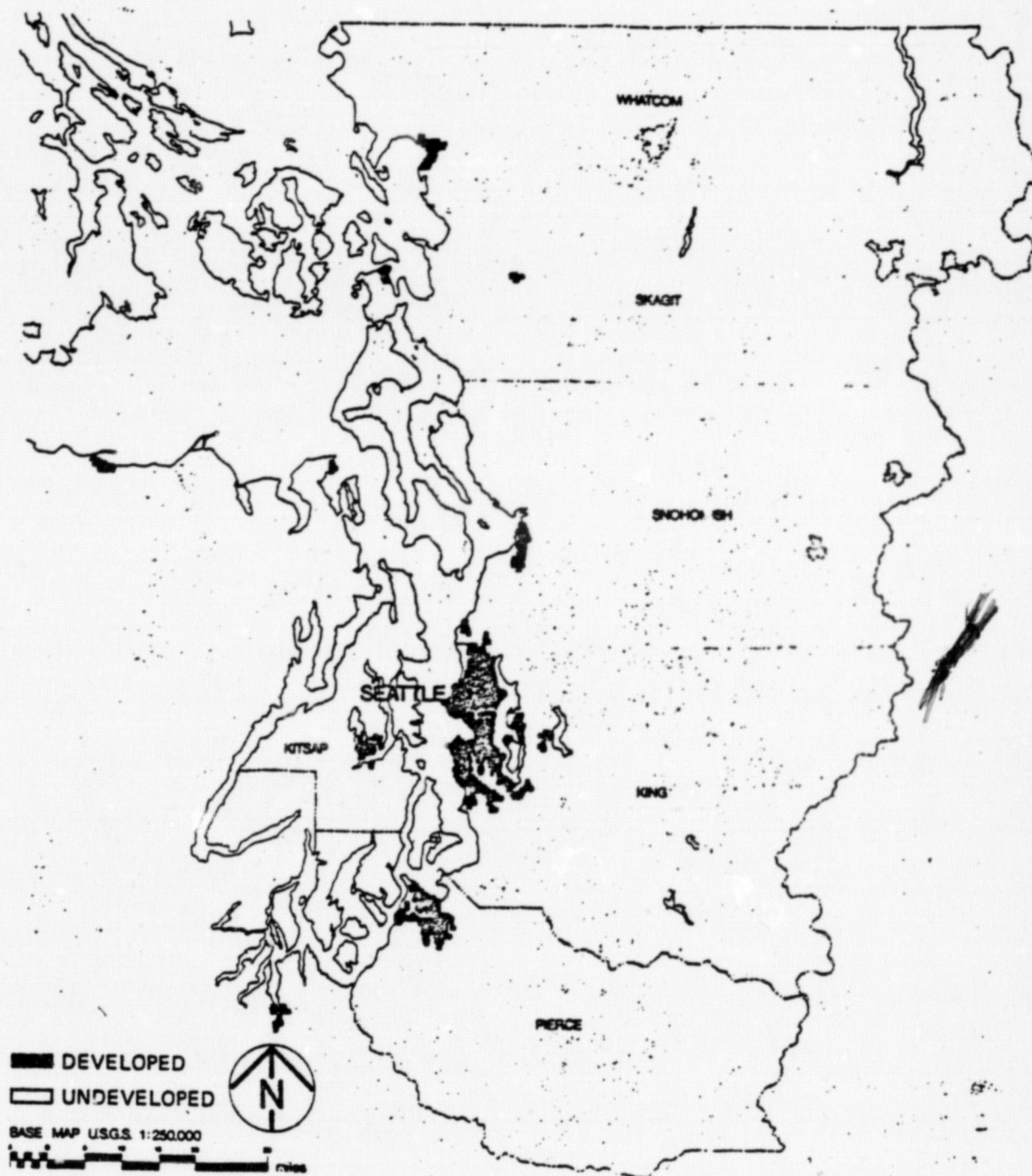
organisms. Two national wildlife refuges encompassing over 34,000 acres were recently established in San Francisco and San Pablo Bays. Solano and Contra Costa Counties border the Sacramento-San Joaquin delta and its rich tidal flats. Solano County's 54,000-acre Suisun Marsh is one of California's few remaining natural wetlands. It is a refuge in times of drought, and it is the major feeding and wintering ground for hundreds of thousands of ducks and geese of the Pacific flyway.

The southern half of San Francisco Bay is subject to serious air pollution concentrations and may be undesirable for large-scale primary industry. Particulate, sulphur oxide, and nitrogen oxide emissions under high OCS production could be significant in the sample

area. Base case emissions should increase due to increased fossil fuel combustion, and OCS-related emissions may result in as much as a 40 percent increase over the base case. Air quality impacts depend on specific industry sites because the terrain is mountainous and wind and weather conditions vary widely. BOD levels should not increase significantly with OCS production.

SUMMARY AND CONCLUSIONS

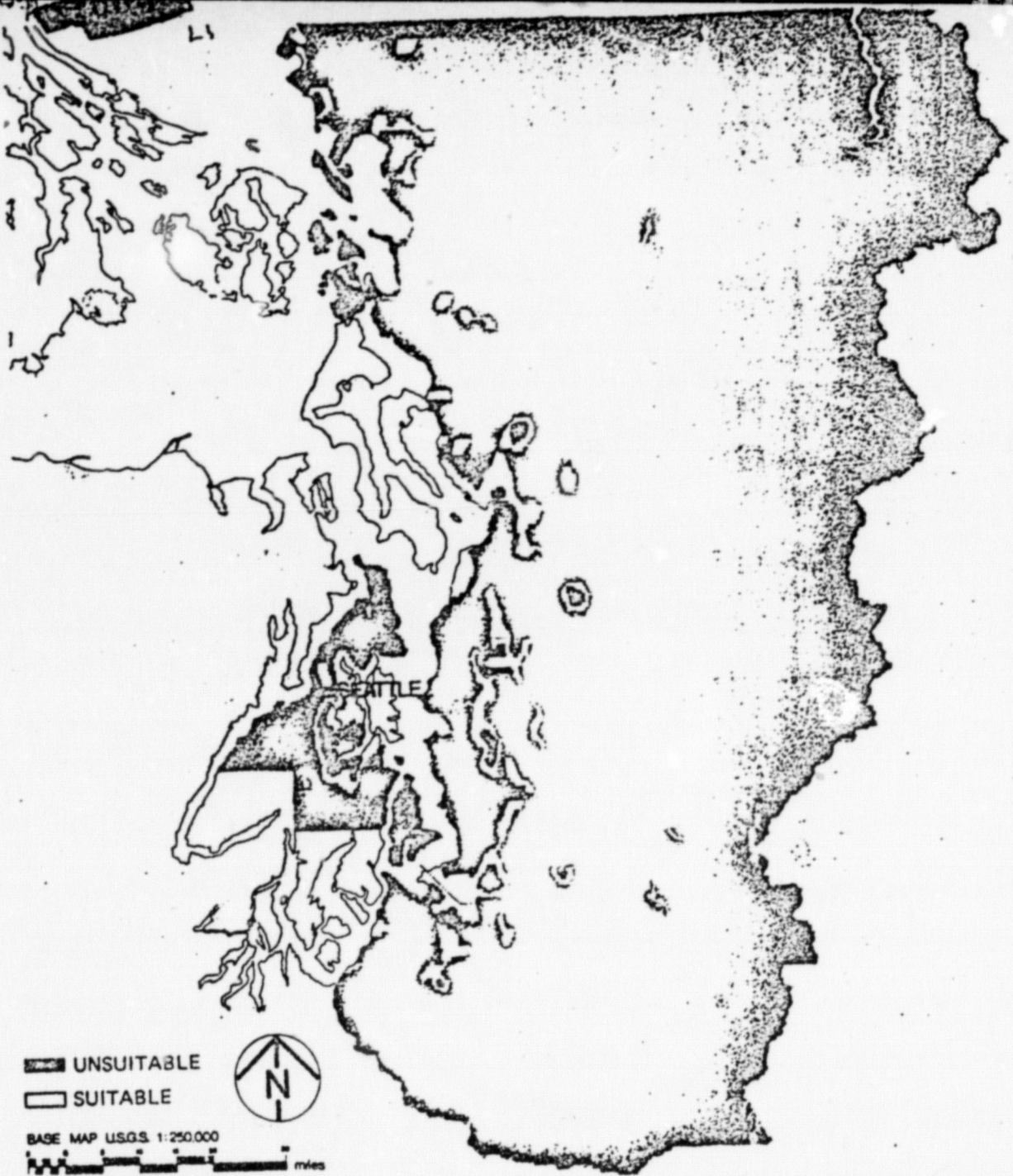
Outer continental shelf oil and gas production will result in onshore development of huge refineries, petrochemical complexes, gas processing facilities, construction industries, and other service operations. This development will create jobs, increase income, shift populations, change residential and commercial develop-



Source: Resource Planning Associates, Inc., and David M. Dornbusch & Co., 1974, "Potential Onshore Effects of Oil and Gas Production on the Atlantic and Gulf of Alaska Outer Continental Shelf," prepared for the Council on Environmental Quality under contract No. EQ4AC002.

Figure 7-15. Puget Sound Land, Developed and Undeveloped

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3 Gas
v under

Source: Resource Planning Associates, Inc., and David M. Dornbusch & Co., 1974, "Potential Onshore Effects of Oil and Gas Production on the Atlantic and Gulf of Alaska Outer Continental Shelf," prepared for the Council on Environmental Quality under contract No. EQ4AC002.

Figure 7-16. Puget Sound Land Suitable for General/Primary Development

ment and land use extensively, and degrade the environment. These impacts are at least partially controllable by siting and development policies that encourage environmental protection and good design.

Chapter 7 highlights some of these major impacts. It does not attempt to describe every possible onshore staging point but rather to illustrate a technique for evaluating what will happen onshore if oil and gas are discovered and produced in given areas.

The impacts for high-level Atlantic OCS production are indicated in Table 7-20 and in Table 7-21 for Alaska and the Pacific. The tables show offshore platforms, refineries, gas processing plants, petrochemical complexes, value of construction, employment, population, acreage, hydrocarbon loadings, and BOD levels.

Economic Impacts

Economic impacts, including employment and output, vary from region to region. By the year 2000, as many as 75,000 additional jobs would be created in one sample area (Charleston) and as many as 120,000

in one sample region (South Carolina and Georgia) under high OCS production assumptions. These figures represent 40 and 25 percent increases over expected conditions without offshore drilling in the area and region, respectively.

Not all regions would experience such growth. In New England, less than 20,000 new jobs would be created in the local area (9 percent over the base case) and about 80,000 jobs in the region (3 percent). The west coast growth is somewhat smaller—about 20,000 new local jobs and 40,000 or fewer for each region.

Impacts in Alaska would be smaller in terms of the absolute number of jobs but much more significant in terms of percentage increases. Under low OCS production assumptions, new employment would be roughly one-third to one-half of the high development case.

Of the five industrial sectors analyzed—oil and gas recovery, gas processing, refining, petrochemicals, and construction—construction in 1985 and petrochemicals in 2000 tend to be the largest employers. The assumed

TABLE 7-18
Solano/Contra Costa Counties Aggregate Economic Impacts, High Development

Sector	1985	Percent over BC 1	Percent over BC 2 ¹	2000	Percent over BC 1	Percent over BC 2 ¹
Employment (thousands)						
Construction	5.9	31	—	1.8	7	—
Refining, gas processing, petrochemicals	1.3	38	—	4.9	176	—
Other manufacturing	2.2	5	—	3.5	6	—
Agriculture	*	*	—	*	*	—
Utilities	0.7	4	—	1.3	6	—
Services	6.3	3	—	10.5	4	—
Total	16.4	6	—	22.0	5	—
Value of output (\$ million) ²						
Construction	194	25	—	78	6	—
Refining, gas processing, petrochemicals	484	29	—	1,716	102	—
Other manufacturing	120	14	—	264	9	—
Agriculture	*	*	—	1	*	—
Utilities	28	4	—	73	6	—
Services	149	3	—	308	4	—
Total	975	11	—	2,440	15	—

* = negligible.

¹ There is no Base Case 2.

² All dollar figures are 1970 constant dollars.

Source: Resource Planning Associates, Inc., and David M. Dornbusch & Co., 1974, "Potential Onshore Effects of Oil and Gas Production on the Atlantic and Gulf of Alaska Outer Continental Shelves," prepared for the Council on Environmental Quality under contract No. EQ4AC002.

 NAME James Kenneth Mitchell

ADDRESS Department of Environmental Resources
3526 Cook College
Rutgers University
New Brunswick, New Jersey 08903
U.S.A.

Tel: 201-932-9634

PLACE AND DATE OF BIRTH Londonderry, Northern Ireland; April 5, 1943

MARITAL STATUS Married

CHILDREN Two

EDUCATION (University)

1961-1965	Queens University of Belfast - B.Sc.(Honors); Geography Northern Ireland
1965-1967	University of Cincinnati - M.A.; Geography Cincinnati, Ohio M.C.P.; Community Planning U.S.A.
1967-1970	University of Chicago - Ph.D.; Geography, 1973 Chicago, Illinois U.S.A.

HONORS AND FELLOWSHIPS

1966	Award of Merit, Ohio Valley Chapter, American Institute of Planners
1967-1969	University of Chicago Fellowship
1969-1970	Resources for the Future Inc., Doctoral Research Fellowship

THESES AND DISSERTATION

1965	The Pleistocene Geomorphology of the area around Lough Foyle
1967	Resource Perception: The Appraisal of Land Value in Crosby Township
1973	Community Response to Coastal Erosion: Individual and Collective Adjustments to Hazard on the Atlantic Shore

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PRESENT POSITION

Associate Professor of Environmental Resources,
Cook College, Rutgers University, New Jersey

3527

PROFESSIONAL EXPERIENCE

Summer 1964 Field Assistant, International Geographical Congress geomorphology field trip in Ireland

1964-1965 Cartography laboratory assistant, Queen's University

1965-1967 Graduate Research Assistant, University of Cincinnati

1967-1970 Fellow, University of Chicago

Summer 1968 Urban Studies Center Research Assistant, under contract to U.S. Army Corps of Engineers urban flood plain study

1970-1973 Lecturer in Environmental Resources, Rutgers University

1973- June 1975 Assistant Professor of Environmental Resources, Rutgers University

July 1975-present Associate Professor of Environmental Resources, Rutgers University

RESEARCH INTERESTS

Human responses to natural hazards and other environmental stresses;
coastal zone management; environmental management and planning

COURSES TAUGHT

Undergraduate

Geography 211: Conservation of Natural Resources
Interdepartmental course 496: Air Photo Interpretation
Environmental Resources 203: Human Modification of the Landscape

Graduate

Geography 501: Introduction to Natural Resources
Geography 502: Resource Management Decision Making
Geography 507: Environmental Management

PAPERS PRESENTED AT PROFESSIONAL MEETINGS

1966 "The Miami Valley Project: An Interim Assessment," Association of American Geographers, East Lakes Division, Annual Meeting, October 1966, Cincinnati, Ohio.

1971 "Perceptions of Coastal Erosion on the Atlantic Shore," Second Coast and Shallow Water Research Conference, Newark, Delaware, October 9-11, 1971.

1972 "Global Summary of Human Response to Natural Hazards: Coastal Erosion Commission on Man and Environment, International Geographical Union, 22nd International Geographical Congress, Calgary, Alberta, July 24-28, 1972.

1973

3528

Panel presentation: "Natural Hazards Research," Association of American Geographers, Mid States Division, Annual Meeting, Philadelphia, October 1973.

1974

Panel presentation: "Beach Preservation and Protection," Marine Technology Society, 10th Annual Conference, Washington, D.C., September 23-25, 1974.

1975

"Coastal Management from a New Jersey Perspective," American Association for the Advancement of Science (Geography Section), Annual Meeting, New York, January 28, 1975.

1975

"Improving Local Land Use Planning: Geographical Contributions to Environmental Assessment," Association of American Geographers, 71st Annual Meeting, Milwaukee, April 20-23, 1975.

1975

"Onshore Policy Research and Offshore Oil: A British Perspective," 1st Annual Conference of The Coastal Society, Arlington, Virginia, November 24-26, 1975.

FUNDED RESEARCH

1971-1974

"Processes of Adjustment to the Natural Environment Among In-migrant Populations," Hatch Project No.291, New Jersey Agricultural Experiment Station, Rutgers University, New Brunswick, N.J.

1975-1976

"Coastal Impacts of Scottish Offshore Continental Shelf Development," Rutgers University Research Council Grant No.07-2173.

PUBLICATIONS

1. "Planning for Homogeneous Systems: The Study of a Process in Southwest Ohio," Proceedings, Midwest Students Seminar on Urban and Regional Research, Department of Urban and Regional Planning, University of Wisconsin, February 9-11, 1967, Madison, 1967.
2. A Selected Bibliography of Coastal Erosion, Protection and Related Human Activity in North America and the British Isles, Natural Hazard Research Working Paper No.4, University of Colorado: Institute of Behavioral Science, 1969.
3. "Perceptions of Coastal Erosion on the Atlantic Shore," Proceedings of the Second Coastal and Shallow Water Research Conference, Los Angeles: University of Southern California Press, 1971, 159 (Abstract).
4. "Natural Hazards Research," in Perspectives on Environment, ed. by Ian R. Manners and Marvin W. Nikesell, Commission on College Geography Publication No.13, Washington, D.C.: Association of American Geographers, 1974, 311-341.
5. Community Response to Coastal Erosion: Individual and Collective Adjustments to Hazard on the Atlantic Shore, Department of Geography Research Paper No. 156, Chicago: University of Chicago, 1974.
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8. "The Rush to the Shore: How to Live with Coastal Erosion," Landscape Architecture, April 1975, Vol.65, No.2, 170-177.
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12. "Man-Environment Research Preferences Among Geographers," Journal of Geography, LXXIV, No.9 (December, 1975), 525-530.
13. "Adjustment to New Physical Environments Beyond the Metropolitan Fringe," Geographical Review, LXVI, No.1 (January, 1976) (forthcoming).
14. Book Review: William F. Baxter, People or Penguins: The Case for Optimal Pollution in Human Ecology, IV, No.1 (forthcoming, 1976).
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16. "The Land-Water Interface," Chapter 9, Environmental Sourcebook, Commissioned by the Division of Technology and Environmental Education, Department of Health, Education and Welfare, Washington, D.C.: U.S. Government Printing Office (forthcoming, 1976). With E. Pruitt et al.
17. "Choosing Guidelines for Coastal Management in Developing Countries," Journal of Developing Areas (accepted for publication, forthcoming 1976).
18. "Onshore Policy Research and Offshore Oil: A British Perspective," Proceedings, 1st Annual Conference of the Coastal Society (forthcoming, 1976).

OTHER PROFESSIONAL ACTIVITIES

- | | |
|--------------|--|
| 1971-present | Corresponding member, Commission on Man and Environment, International Geographical Union |
| 1973-1974 | Consultant, National Science Foundation project, "Assessment of Research on Natural Hazards," Institute of Behavioral Science, University of Colorado, Boulder, Colorado |
| 1973 | Rapporteur, National Conference on Assessment of Research on Natural Hazards, Estes Park, Colorado, October 15-18. |
| 1974-present | Member, Committee on Environmental Studies, Association of American Geographers |
| 1974 | Member, Instructional Scientific Equipment Program Evaluation Panel, National Science Foundation, Arlington, Virginia, March 20-22, 1974. |

1974

3530

Member, Geographical Review Advisory Committee, American Geographical Society, New York

1974-present

Manuscript reviewer: Geographical Review, Human Ecology, Science.

December 1975-
July 1976

Acting Book Review Editor, Human Ecology

July 1975 -
present

Department of Environmental Resources Teaching Program Coordinator,
Rutgers University

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American Geographical Society

American Shore and Beach Preservation Association

Association of American Geographers

Institute of British Geographers

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December 24, 1975

ADDENDUM

PAPERS PRESENTED AT PROFESSIONAL MEETINGS

- 1976 "Coping with Onshore Impacts of Scottish Offshore Oil: Planning Implications for the Northeastern United States," Association of American Geographers, 72nd Annual Meeting, New York, April 11-14, 1976.

PUBLICATIONS

19. Book Review: Thomas F. Saarinen, Environmental Planning: Perception and Behavior in The Professional Geographer (forthcoming, 1977).
20. Book Review: Robert L. Bish et al., Coastal Resource Use: Decisions on Puget Sound in Annals of the Association of American Geographers (forthcoming, 1977).
21. "Onshore Impacts of Scottish Offshore Oil: Planning Implications for the Middle Atlantic States," Journal of the American Institute of Planners, October, 1976 (forthcoming).

OTHER PROFESSIONAL ACTIVITIES

Prospective member, N.J. Commission on Land Use and Nuclear Power Plant Siting (in process of formation) - 1976.

June 1, 1976

1. COASTAL HAZARDS HANDBOOK, OCEA, DC
2. NRDA
3. NRC
4. NH IN-REACH - Discussion, 1971 July 2, 1976 Greenland Co.
5. AS DEP



UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

----- X
THE STATE OF NEW YORK and THE NATURAL :
RESOURCES DEFENSE COUNCIL, INC., :

Plaintiffs, :

-against- :

THOMAS S. KLEPPE, Secretary of the :
Interior, :

Defendant. :

----- X
JAMES K. MITCHELL, M.A., M.C.P., Ph.D.
ASSOCIATE PROFESSOR OF ENVIRONMENTAL RESOURCES

RUTGERS UNIVERSITY

I. PAPERS PRESENTED AT PROFESSIONAL MEETINGS

- 1966 - "The Miami Valley Project: An Interim Assessment,"
Association of American Geographers, East Lakes Division,
Annual Meeting, October, Cincinnati, Ohio
- 1971 - "Perceptions of Coastal Erosion on the Atlantic Shore,"
Second Coastal and Shallow Water Research Conference,
Newark, Delaware, October 9-10, 1971.
- 1972 - "Global Summary of Human Response to Natural Hazards:
Coastal Erosion," Commission on Man and Environment,
International Geographical Union, 22nd International
Geographical Congress, Calgary, Alberta, July 24-30,
1972.
- 1973 - Panel presentation: "Natural Hazards Research,"
Association of American Geographers, Mid States Division,
Annual Meeting, Philadelphia, October 1973.
- 1974 - Panel presentation: "Beach Preservation and Protection,"
Marine Technology Society, 10th Annual Conference,
Washington, D.C., September 23-25, 1974.

- 1975 - "Coastal Management from a New Jersey Perspective," American Association for the Advancement of Science (Geography Section), Annual Meeting, New York, January 28, 1975.
- 1975 - "Improving Local Land Use Planning: Geographical Contributions to Environmental Assessment," Association of American Geographers, 71st Annual Meeting, Milwaukee, April 20-23, 1975.
- 1975 - "Onshore Policy Research and Offshore Oil: A British Perspective," 1st Annual Conference of The Coastal Society, Arlington, Virginia, November 2-26, 1975.
- 1976 - "Coping with Onshore Impacts of Scottish Offshore Oil: Planning Implications For The Northeastern United States," 72nd Annual Meeting, Association of American Geographers, Session on Management of Coastal Resources, April 14, 1976.

II. PUBLICATIONS

1. "Planning for Homogeneous Systems; The Study of a Process in Southwest Ohio," Proceedings Midwest Students Seminar on Urban and Regional Research, Dept. of Urban and Regional Planning, University of Wisconsin, February 9-11, 1967, Madison, 1967.
2. "A Selected Bibliography of Coastal Erosion, Protection, and Related Human Activity in North America and the British Isles," Natural Hazard Research Working Paper No. 4, University of Colorado: Institute of Behavioral Science, 1969.
3. "Perceptions of Coastal Erosion on the Atlantic Shore," Proceedings of the Second Coastal and Shallow Water Research Conference, Los Angeles: University of Southern California Press, 1971, 159 (Abstract).
4. "Natural Hazards Research," in Perspectives on Environment, ed. by Ian R. Manners and Marvin W. Mikesell, Commissioner on College Geography Publication No. 13, Washington, D.C.: Association of American Geographers, 1974, 311-341.
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6. Book Review: Editors of the Ecologist, Blueprint for Survival in ASM News XL, No. 1 (January, 1974), 62-65.
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9. "Issues Involved in United States Beach Preservation and Protection Programs," Shore and Beach, XLI, No. 1 (April, 1975), 27-29.
10. Book Review: Dennis W. Ducsik, Shoreline for the Public: A Handbook of Social, Economic and Legal Considerations Regarding Public Recreational Use of the Nation's Coastal Shorelines in Geographical Review, LXV, No. 3 (July, 1975), 411-412.
11. Book Review: Gilbert F. White, (ed.), Natural Hazards: Local, National, Global in The Professional Geographer, XXVII, No. 3 (August, 1975)
12. "Man-Environment Research Preferences Among Geographers," Journal of Geography, LXXIV, No. 9 (December, 1975) 525-530.
13. "Adjustment to New Physical Environments Beyond the Metropolitan Fringe," Geographical Review, LXVI, No. 1 (January, 1976) (forthcoming).
14. Book Review: William F. Baxter, People or Penguins: The Case for Optimal Pollution in Human Ecology, IV, No. 1 (forthcoming, 1976).
15. "Resources Scarcity: A Persistent Environmental Concern," Chapter 3, Environmental Sourcebook, Commissioned by the Division of Technology and Environmental Education, Dept. of Health, Education and Welfare, Washington, D.C.: U.S. Government Printing Office (forthcoming, 1976.)
16. "The Land-Water Interface," Chapter 9, Environmental Sourcebook, Commissioned by the Division of Technology and Environmental Education, Dept. of Health, Education and Welfare, Washington, D.C.: U.S. Government Printing Office (forthcoming, 1976) with E. Pruitt et al.
17. "Choosing Guidelines for Coastal Management in Developing Countries," Journal of Developing Areas, (accepted for publication, forthcoming 1976).
18. "Onshore Policy Research and Offshore Oil: A British Perspective," Proceedings, 1st Annual Conference of the Coastal Society (forthcoming, 1976).
19. "Coping with Onshore Impacts of Scottish Offshore Oil: Planning Implications For The Northeastern United States", Fall 1976, (accepted for publication) Journal, American Institute Of Planners.

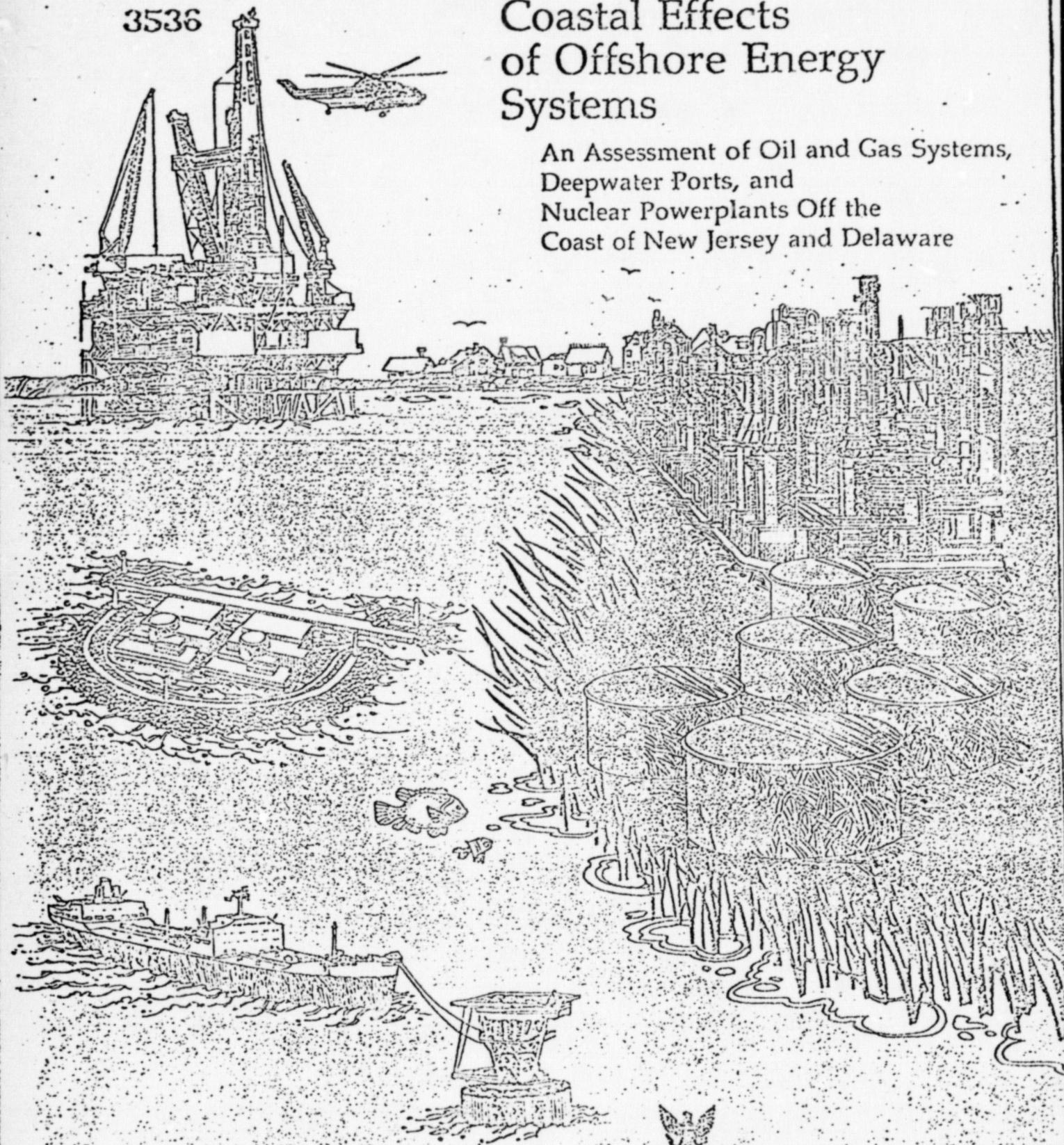
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Page 3535 is not included in this Appendix .

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Coastal Effects of Offshore Energy Systems

An Assessment of Oil and Gas Systems,
Deepwater Ports, and
Nuclear Powerplants Off the
Coast of New Jersey and Delaware



United States Congress
Office of Technology Assessment
November 1976

if the high estimate of 4.6 billion barrels of recoverable oil is correct and at about 4,500 workers if the median estimate of 1.8 billion barrels is correct. Capital expenditures would total between \$2 billion and \$4 billion. Peak land requirements for the high estimate would be about 1,645 acres in the New Jersey-Delaware region. Of that, 320 acres could be coastal land around coastal harbors and the remainder would be inland. Seven hundred acres would be required for pipeline rights-of-way that probably would parallel existing railroad lines or highways.

Analysis of the tax systems of a variety of coastal States, including New Jersey and Delaware, indicates that per capita tax revenue from OCS-related installations onshore would be significantly higher than the statewide average per capita revenues from other sources, except during the first 2 or 3 years of development. The principal reason is that the major onshore installations, such as tank farms and pipelines, are capital intensive, and therefore produce substantial sales and property tax revenues. However, this estimate is for statewide revenues only. It is quite possible that particular localities within a State will experience net adverse budgetary impacts during the course of OCS development, since there is little reason to expect that the tax revenue-producing onshore facilities would be located in the tax jurisdiction of the communities that must provide public services and facilities for the population supporting offshore exploration and development. This problem may also occur between States if the oil and gas are not landed in the same State in which the main support bases are located. It is also possible that a locality could experience a net negative fiscal impact if extraordinary expenditures for public facilities such as roads are required to support OCS development.

The major source of potential impacts on air and water quality onshore would be any new refinery capacity that might result from OCS development. Ambient air quality stand-

ards, particularly those related to oxidant levels, could be a significant constraint on new or expanded refinery capacity. Concentrations of waterborne pollutants in refinery effluent are relatively small and probably would not significantly affect the quality of a receiving stream. Refinery cooling, however, could produce thermal pollution problems in Delaware Bay or Newark Bay, both of which are already very close to the maximum permissible load.

Dramatic changes in regional energy prices should not be expected to follow OCS development. Lower transportation costs might give New Jersey and Delaware a price advantage compared with some other regions of the country. But future prices would depend, in part, on oil and gas price control policies.

As a result of its study, OTA has identified the Federal-State conflicts as the major issues. Eight specific OCS issues are treated in this report. They are:

Federal Management System.—Federal management of the offshore oil and gas program is fragmented within the Department of the Interior and coordination with other Federal agencies which share jurisdiction is ineffective. (See pages 43-46.) *

Regulation and Enforcement.—Inadequate regulation and enforcement of offshore oil and gas technology could result in more accidents and more oil spills than would occur if a more effective system were implemented. (See pages 47-50.)

Oil Spill Liability and Compensation.—Existing laws are not adequate either to assign liability or compensate individuals or institutions for damages from oil spills resulting from exploration, development, or production in the Baltimore Canyon Trough area. (See pages 51-56.)

Oil Spill Containment and Cleanup.—There

is no assurance that the technology utilized in the Baltimore Canyon Trough or in any other OCS frontier region would be adequate for oil spill surveillance, containment, and cleanup. (See pages 57-59.)

Environmental Studies.—Environmental research and baseline studies are not formally coordinated with the Interior Department's leasing schedule and there is no requirement that information gathered be used in the decisionmaking process for sale of offshore lands and subsequent operation. (See pages 60-62.)

State Role.—The limited role of State governments in the decisionmaking process for OCS development under existing laws and practices may lead to unnecessary delays

and improper planning for such development. (See pages 63-66.)

Pollution Research.—The effects of pollutants which may be discharged during OCS operations cannot presently be determined with any accuracy and recent research efforts have not clarified conflicting claims by oil companies and environmental groups regarding the amount and consequences of marine pollution. (See pages 67-69.)

Conflicting Ocean Uses.—There are potential conflicts between OCS oil and gas activities and vessel traffic engaged in commercial shipping and fishing activities. However, there has been no comprehensive study and analysis to identify all conflicts and to find ways of resolving them. (See pages 70-75.)

OFFSHORE OIL AND GAS SYSTEMS—FINDINGS

Effects of OCS Development

Oil and natural gas can be produced in the amounts presently projected off the Mid-Atlantic coast without significant damage to the environment or disruption of patterns of life in New Jersey or Delaware if operations are carefully designed, planned, and monitored. However, careful planning, engineering, and strict operational monitoring are required for each of these complex systems. To a large extent, such planning and monitoring will depend on the quality of oversight by the responsible Federal agencies. (See pages 150-160.)

Changes in lines of authority within the Department of the Interior would improve the Department's ability to supervise offshore development and to coordinate operations with State and local governments. (See pages 43-46, 130-131.)

Federal-State Relations

States cannot participate in a meaningful way in the process that leads to major leasing and OCS decisions under present policies. The State role at present is little more than that of commentator. (See pages 131-140, 155-156.)

Existing laws and regulations do not clearly specify the information about OCS activities to which States are entitled, a lapse that encourages disputes over rights to data between State and Federal officials. (See pages 63-66, 125, 138-140, 147-150.)

Federal efforts to deal with State concerns are fragmented among many departments and agencies and seldom reflect a sense of need for coordination, clear lines of communication, and close working ties. (See pages 43-46, 130, 152-155, 161-165.)

The Interior Department's relations with

State governments are improving but relations still depend more on individual judgments by Interior Department officials than on formal administrative procedures on which the States can rely. (See pages 139-140.)

- Changes in Federal OCS policies and practices have lagged behind changes in the social and political climate in the Mid-Atlantic in which offshore development will occur. The lag is particularly important with respect to environmental concerns and a desire among States for greater access to Federal information and decisionmaking. (See pages 63-66, 127-131.)
- As of mid-1976, the Office of Coastal Zone Management had not asserted itself as coordinator of State and Federal activities involving the effects of offshore development on the coastal zone. (See pages 43-46, 136-138.)
- Concerns of New Jersey and Delaware officials over environmental and social impacts of offshore development are compounded by their doubts about the quality of Federal management of the leasing program and doubts about the effectiveness of the enforcement of OCS regulations. (See pages 63-66.)

Neither Delaware or New Jersey wants to delay offshore development unnecessarily, but both are prepared to seek legal remedies if development in the Mid-Atlantic proceeds without what they consider adequate State participation in decisions. (See pages 159-160.)

Planning

- Federal requirements under the Coastal Zone Management Act that Federal activities be consistent with a State's coastal zone management plan have played no role as yet in Mid-Atlantic OCS activities

because neither New Jersey or Delaware has completed coastal zone management plans. (See pages 136-138.)

- The exact location of OCS facilities and the magnitude of development impacts will not be known until Outer Continental Shelf "frontier areas" have been explored and the size and location of petroleum resources have been determined. (See pages 133, 143-144, 146-172.)

Regulation, Safety, and Pollution

- The regulation of offshore technology by the U.S. Geological Survey (USGS) is based on general guidelines to the industry with minimal inspection and enforcement. USGS regulations are more concerned with specific pieces of equipment than with the total oil and gas production system. (See pages 47-50, 130, 146, 152-155, 161-163.)
- Techniques exist, but are not always used, for setting design standards and installation practices and for testing all major items of equipment involved in OCS operations. (See pages 47-50, 152-155, 161-163.)
- Federal regulations are not sufficiently precise with regard to standards for construction of offshore platforms or pipelines. (See pages 47-50, 152-155.)
- The purpose of the Interior Department's OCS environmental studies program and its role in the management of OCS activities is not clearly defined. In their present form, environmental surveys conducted under the auspices of this program are not useful either in writing environmental impact statements or in making OCS leasing decisions. (See pages 60-62, 134-135.)

- Federal pollution research efforts are not as well coordinated as are those sponsored by private industry. (See pages 67-69, 167-169.)

Oil Spills

- Under some weather conditions, oil spills from a platform as far as 50 miles at sea could reach the New Jersey and Delaware coasts but it is not possible to predict the point of impact. (See pages 165-166.)
- Weather, wind, and ocean currents will affect the dispersion, trajectory, chemical composition, and ultimate disposition of oil spills. These conditions vary from season to season, and even from day to day, but research on ocean conditions in OCS areas has a low budget priority. (See pages 165-166.)
- The Federal Government does not set definitive standards for the industry to follow in carrying out its responsibility to provide cleanup equipment in the event of a major oil spill. USGS does not inspect cleanup equipment but relies on industry to make its own inspections. (See pages 57-59, 166-167.)
- USGS procedures for monitoring discharges of oil and other pollutants during OCS operations are inadequate and the agency does not use monitoring equipment that is available and in use by other Government agencies. (See pages 57-59, 166-169.)
- Under existing Federal practices there are no standards that cleanup and containment equipment, which would be available in the Mid-Atlantic, must meet, and no assurance that a major oil spill actually could be confined and removed

from the water even if the best equipment is available. (See pages 57-59, 166-169.)

- At the present time, the laws of an adjacent State would be used to determine a lessee's liability for oil spill damages but neither New Jersey or Delaware laws provide for compensation to injured parties. (See pages 51-56.)

Impacts

- Drastic changes in regional energy prices will not result from offshore development in the Mid-Atlantic. (See pages 171-172.)
- A net fiscal benefit to Mid-Atlantic State governments probably will result from onshore facilities related to offshore development but there may be localized fiscal problems and the advantage would not occur until after the first 3 years of offshore activity. (See pages 157-159.)
- Discovery of offshore oil would not necessarily lead to construction of new refineries in the Mid-Atlantic. In fact, existing air quality regulations might prevent construction of new refineries in New Jersey and Delaware. (See pages 169-170.)
- The major impacts on air and water quality in the region would result from expanded refineries and from gas processing plants. (See pages 170-171.)
- There is no formal mechanism for resolving conflicts among the many users of the ocean or for directing research to discover the cumulative environmental consequences of expanding the use of the ocean for energy development and other purposes. (See pages 37-42, 70-75, 155-156.)

but they seldom identify hard choices among limited ocean resources and ocean uses.

The region's ocean waters have been used for fishing, military operations, and commercial shipping since colonial days. More recently, the ocean has been used for recreation, dump sites, communication lines, and weather stations.

Several other ocean uses have been proposed, either for the near or distant future. One proposal would install wind- or wave-powered generators at sea to generate electrical power. Research and development is underway on methods of using the ocean for controlled development of biological resources as a method to generate increased food and energy supplies. Mining of the Outer Continental Shelf for sand, gravel, and minerals is an existing activity that could be expanded. Several proposals exist for creating artificial islands for heavy industries that, on land, are regarded as "bad neighbors."

Meanwhile, use of the ocean and its beaches for recreation continues to grow, as do marine research, archeological exploration, and salvage operations.

Many conflicts in ocean use are not confined to U.S. territorial waters. Commercial fishing, shipping, and mining, for example, are international activities that often involve U.S. waters. The Third International Law of the Sea Conference is addressing many marine problems, although its primary mission is to resolve conflicts among nations rather than conflicts among individual users. Some industry organizations and a few international organizations, such as the Intergovernmental Maritime Consultative Organization (IMCO), were created to solve problems between specific ocean activities and other uses that conflict with those activities. IMCO deals primarily with commercial shipping activities. However, no single international group is responsible for an overall view of the potential for future problems.

The following summary of the major historic and future uses of the ocean off Delaware and New Jersey suggests in more specific terms the potential conflicts among ocean users, both domestic and foreign.

COMMERCIAL FISHING

The Delaware and New Jersey fishing grounds are at the southernmost tip of the North Atlantic fisheries. In

"One of the continuing problems facing the States is the lack of comprehensive planning on the part of the Federal Government. The Department of the Interior should be mandated to prepare extensive 5- and 10-year leasing plans that would include a clear definition of the responsibilities of various Federal agencies at different points of time."

State Official

"We especially endorse the preparation of a 'sea-use' plan to resolve diverse-use conflicts."

Federal Official

"Although there is no formal 'system' as such, parties that might have conflicting uses of specific sea areas are afforded an opportunity to express their concerns when commenting on the EIS's [Environmental Impact Statements] and during public hearings."

Federal Official

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Offshore Priorities and Planning

Future deployment of ocean technologies on a large scale could create serious conflicts among users and impose excessive burdens on ocean and coastal environments unless a system for setting priorities of use and for zoning ocean areas, much as land areas now are zoned, is established.

FINDINGS

1. Decisions about the most appropriate uses of the oceans now are left to the individual judgments of private citizens and companies and the several Federal agencies that have jurisdiction over some phase of ocean activities.

2. There is no formal mechanism for resolving conflicts among the many users of the ocean or for directing research to discover the cumulative environmental consequences of expanding use of the oceans.

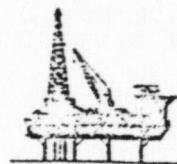
DISCUSSION OF THE ISSUE

In normal operation, none of the three offshore energy systems addressed in this study is likely to impose intolerable burdens on either the ocean or coastal environment, singly or in combination. Conflicts between these new systems and traditional users of waters off New Jersey and Delaware probably can be resolved with appropriate vessel traffic control systems and methods of coordinating oil development and fishing operations.

If such offshore programs as floating nuclear powerplants prove workable, they could lead to deployment of more floating powerplants and other offshore technologies on a major scale.

No priorities now exist for uses of the oceans. No structure, legal or administrative, exists for resolving conflicts among users or for performing research on the long-range and cumulative impacts of expanded ocean use.

Environmental impact statements and public hearings which are required for most ocean licensing provide a forum for identifying some conflicts among ocean uses,



Overall Concern

Public Participation Comments

"Congress should establish priorities that would guide the settlement of disputes. Through complex arbitrations, a 'master plan' could be destroyed or rendered ineffective if too many arbitrators or arbitrations are involved."

Federal Official

"To whom are various proponents of proposals responsible for approval of programs? What criteria are used to judge safety, efficiency costs, etc.? How are offshore project proposals received by the world community?"

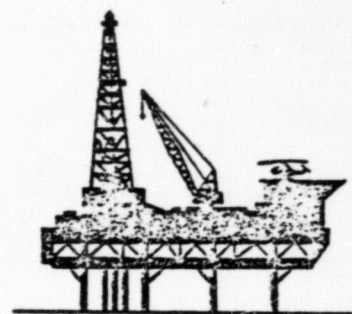
Delaware Citizen

"It certainly is agreed that improved planning is the most important element of this development. A thorough 'Master Plan' should be made at the beginning that forecasts, as accurately as possible, the whole future development of this area."

New Jersey Citizen

Federal Management System

Federal management of the offshore oil and gas program is fragmented within the Department of the Interior and coordination with other Federal agencies which share jurisdiction is ineffective.



Oil and Gas

FINDINGS

1. The Department of the Interior, in its OCS management role, must coordinate elements of development which involve 4 cabinet-level departments, 15 subcabinet and independent agencies, 22 State governments, and public and private interest groups.

2. There is no top-level coordination of OCS management, practices, and studies initiated by the Department of the Interior. Line responsibilities for OCS activities are divided within the Department of the Interior between two of its bureaus, both of which have a wide range of other activities that overshadow their OCS responsibility.

3. Clear lines of responsibility have not been established between the Department of the Interior and the Office of Coastal Zone Management despite the fact that offshore development in the Mid-Atlantic could produce the most important impacts on coastal zones since the Coastal Zone Management Act became law.

DISCUSSION OF THE ISSUE*

Despite the urgency which the Administration attaches to expanding offshore lease sales and petroleum production, no consolidation of responsibility and accountability for the OCS program in one agency has occurred.

*This brief discussion of the issue is taken from the full text of "Development of Offshore Oil and Gas in the Mid-Atlantic," chapter IV, particularly pages 124-140.

Public Participation Comments

"We believe, however, that much of the confusion, delays, and uncertainties involved has been due to the 'crash program' which the Government attempted to develop. We have observed over the years that nearly always the same problems of getting organized, staffed, and geared up into smooth-running operations result from crash programs wherever they may be centered."

Environmental Official

"Coordination is needed and desired, not only within Interior, but also with other Federal agencies and with State and local organizations."

Environmental Official

"I feel that private enterprise has done a much better job than the Government. Get the Government out of business and stay out. Business has made this country strong. Government has brought us to uncertainty, inflation, and unemployment."

New Jersey Citizen

The Department of the Interior, in its OCS management role, must coordinate elements of offshore development that involve cabinet-level departments, some 15 subcabinet and independent agencies, 22 State governments, and public and private interest groups. Over the past 2 years, this coordination has been seriously questioned. Examples of this difficulty have been disputes over pipeline jurisdiction among agencies within the Interior Department itself. One Interior Department agency had been negotiating, without success, with a Transportation Department agency over pipeline jurisdiction for nearly 5 years before a memorandum of understanding was signed by the two Departments. No policy-level pressure has been brought to bear on Interior's Bureau of Land Management and the U.S. Geological Survey to solve their own jurisdictional problems about pipelines within the Interior Department.¹

Many studies of offshore development have been initiated at middle and lower levels of the Department. It is not clear whether they will produce information that policymakers either at the Federal or State level actually require. There is no top-level coordination of such studies.

Line responsibility for OCS activities is divided within the Interior Department between two bureaus, both of which have a wide range of other activities that overshadow their OCS responsibilities in terms of manpower and budget. The Bureau of Land Management (BLM) is the lead agency in developing leasing programs and granting rights to offshore exploration and development. Once leases are signed, responsibility for supervising offshore activities passes to the U.S. Geological Survey (USGS), which is primarily a scientific agency with limited regulatory responsibility. The USGS drafts technical regulations for offshore equipment and operations and enforces those regulations. The regulations have been, and continue to be, more concerned with specific items of equipment than with relationships between the equipment and the total oil and gas development system.

Clear lines of responsibility have not been established between Interior officials and officials of the Office of Coastal Zone Management for OCS operations, despite the fact that offshore development in the Mid-Atlantic could produce the most important impacts on

"No bids or contracts or licenses should be issued by the Department of the Interior until Congress establishes a national energy policy."

Delaware Citizen

"Department of the Interior and the oil companies have a serious credibility problem. Top management is either insensitive or too arrogant. Offshore exploration can be speeded up with a "true" cooperative program between local, State, and Federal Government."

State Official

"I don't feel that Government should enter and operate any of the areas under question as this is in direct conflict with free enterprise. However, the proper controls before and during the operation is a function of and should be exercised by Government without the bureaucratic entanglement so prevalent today."

New Jersey Citizen

coastal zones there of any single development since the Coastal Zone Management Act became law.²

The Office of Coastal Zone Management (OCZM) could have a significant impact on offshore energy development when States begin to complete coastal zone plans. The Office has had a relatively minor role in offshore energy development to date. This role could change when New Jersey and Delaware submit final plans and the Office must make judgments about whether the plans make sufficient allowance for coastal zone activities that are in the "national interest" and whether, in turn, Federal activities in coastal zones are "consistent" with State plans. Neither "national interest" nor "consistent" has been formally defined by the OCZM or any Federal agency so far.

State officials have expressed a hope that once coastal plans are completed, the Office of Coastal Zone Management would function as a clearinghouse for Federal activities and plans to help States sort out various Federal programs with coastal implications. They also said they would hope the Office would assert authority, once coastal plans are completed, to force coordination among Federal programs that involve coastlines.³

In addition, long-range national policy questions which arise from accelerated leasing schedules should be considered.

For example, can the United States proceed indefinitely without (a) a formal process for determining total energy needs and (b) calculating the share of those needs that should be provided by OCS resources? That allocation, rather than the existing program for leasing maximum acreage in the minimum number of years, could become the guide for future leasing programs. It is also important to consider whether the United States can proceed indefinitely with offshore developments for oil and natural gas and other seabed resources, fisheries, and commercial activities, without a formal process for reconciling conflicts not only among the uses but between those uses and their impact on the ocean environment.

CONGRESSIONAL OPTIONS

1. Assign a single policy-level office within the

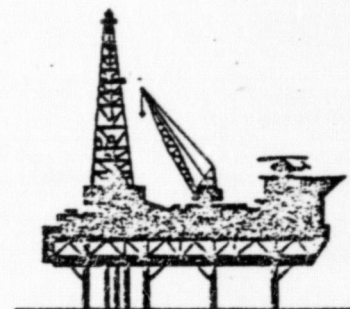
Department of the Interior the authority and responsibility for OCS policy coordination.

2. Assign to a single policy-level office within the Department of the Interior general responsibility for program coordination with all Federal agencies with OCS responsibilities and specific line authority and responsibility for operations of:

- those sections within the USGS which now draft and enforce technical regulations for offshore oil and natural gas activities;
- those sections within the Bureau of Land Management which now supervise offshore leasing and environmental studies programs; and
- all land uses, ocean use, economic, geological, and other planning that is now carried on independently in various sections within the Interior Department that relate to OCS operations.

State Role

The limited role of State governments in the decision-making process for OCS development under existing laws and practices may lead to unnecessary delays and improper planning for such development.



Oil and Gas

FIND

1. Jersey and Delaware officials are not receiving information which they consider necessary to plan for dealing with the onshore impacts of offshore development and there is no description in present laws or regulations which specifies what information must be provided to the State in development plans or impact statements.

2. Top-level State officials in New Jersey and Delaware do not believe that current laws and practices for planning and administering offshore petroleum development allow for full State participation in important decisions.

3. Without meaningful State participation in decisionmaking, State and local officials may try to use court action to block or delay decisions with which they disagree.

Public Participation Comments

"Coastal zone management and statewide land-use plans must be developed with inputs from the total community."

State Official

"I believe New Jersey should have a say as to where the drilling will be done. The sites that have been preliminarily designated are our prime vacation shore-resort areas. New Jersey needs tourist dollars."

New Jersey Citizen

"States more apt to suffer the problems of such development, i.e., pollution, disrupted shoreline, etc., should receive greater proportion of economic and tax-break benefits."

Delaware Citizen

"The area should have some control over it—not just national. There is a possibility that the major outcome will be a ruined shore-resort area."

New Jersey Citizen

DISCUSSION OF THE ISSUE*

The flow of information from the Federal Government to the States in the 2 years since the decision was made to accelerate offshore leasing has been slow and uncoordinated. The States are concerned about this situation because they need comprehensive and timely information in order to plan for the onshore effects of offshore development.

Offshore energy development eventually will mean the location of staging areas, pipelines, tank farms, gas processing plants, and perhaps even new refineries on

*This brief discussion of the issue is taken from the full text of "Development of Offshore Oil and Gas in the Mid-Atlantic," chapter IV, particularly pages 136-140, 146-150.

shore to support OCS oil and gas production. The States are concerned that these onshore activities may require major investments of public funds that cannot be scheduled without considerable advance warning and some assurance that the investments actually are required, and that revenues ultimately generated by offshore activity will support the expenditures.

State officials say, by and large, that they understand the present limitations on the Interior Department in providing some types of data. They also recognize that some progress has been made in meeting State needs, but most of the steps taken by the Bureau of Land Management (BLM) to provide information are strictly administrative actions, are not guaranteed by law, and can be changed without consultation with the States.

State officials also say that there are still specific information gaps, principally in the following areas:

- Hard information on potential onshore impacts, including a quantification of potential economic losses to tourist and fishing industries.
- Detailed estimates of oil and gas reserves.
- Historic and predictive data on the incidence and effects of oil spills.
- Information on geologic and climatic conditions and shoreline characteristics that might pose dangers to offshore structures and pipelines.
- Environmental and baseline data in general, particularly data on wetlands and nearshore areas.

Once management plans have been approved by Federal officials under the Coastal Zone Management Act, both States presumably would have a legal right under the Act to "necessary information and data" about any Federal activity in their coastal zone, including activity related to offshore oil and natural gas development. However, since the Act does not specify whether the States or the Federal Government would interpret the word "necessary," it is not certain that it will solve the States' information problems. // Final approval of New Jersey and Delaware coastal zone management programs is expected early in 1977 //

"The States of Delaware and New Jersey should have strong voice in all proceedings. No 'Federal-experts-know-best' attitude. Some 'experts' simply are not greatest authorities on all matters, especially local ones."

Delaware Citizen

"I feel as a resident of Delaware, I do not have enough opportunity to agree or disagree about energy development."

Delaware Citizen

"The resources of the OCS belong to the Nation, not to Delaware or New Jersey individually. They therefore have to be developed with the national interest as the first priority, with all efforts to accommodate State concerns."

Federal Official

States have also pressed for access to point-of-no-return decisions that would affect the location and magnitude of onshore activities. By law, the States' role is presently limited to not much more than that of an observer. They are allowed to comment on information and proposed actions, but there is no requirement that their comments and suggestions be acted upon.

The goal of legislation should be to create a framework for relationships between State and Federal Governments that would ensure States full participation in major OCS decisions. One way to assure State involvement in those major decisions could be to make participation a legal right of a State rather than an option of Federal decisionmakers. Thus, the right of States to a voice in policy decisions that may have significant social, economic, or environmental consequences for their citizens, would be unobstructed up to, but not including, the right to veto Federal offshore development plans.

States have the right through their riparian laws, environmental protection regulations, and zoning powers, to block or delay development once it involves State lands. State officials with whom OTA researchers talked in the course of the study seemed universally to prefer continuing participation in development decisions rather than blocking actions, but officials indicate they will take legal action to block development if their concerns are not satisfied.

Under pending legislation, a revision of the OCS Lands Act of 1953, States would be entitled to comment on development plans before they were approved by the Secretary of the Interior, to have written explanations for the Secretary's rejection of those comments, and to appeal that decision to the U.S. Circuit Court of Appeals.

That same principle of arbitration could be applied to other important decision points in the development process, including the sale of leases. The Interior Department, for example, could solicit State comments on proposed lease sales and solicit State proposals for lease stipulations which States felt necessary to protect their environmental and economic interests. Interior could explain in writing why any State proposal had been rejected. States could have the same rights of appeal on lease stipulations as they would have on development plans under the pending legislation.

"Exploration should be controlled by State and Federal Governments in partnership."

New Jersey Citizen

"It is probably true that in the beginning Interior did not make enough contact with the States and furnish them with readily available information. But this situation is much improved."

Industry Official

"It would seem that the requirement that a draft EIS be submitted to affected States before it is released as a draft would delay preparation of the final report."

Environmental Official

Enforcing agencies could also submit to the States long-range and detailed plans for enforcing lessee compliance with operating orders, evaluate State comments on the plans and either modify them or explain a failure to modify them to accommodate any State objections.

Such free exchange of information and State access to decisions would not necessarily resolve all future conflicts about offshore energy development. It would, however, help clear up uncertainties about the ground rules for development which affect not only Federal and State officials but the oil industry as well.

Codifying the rights of States to participate in decisions, object to proposals, and appeal to third parties could extend the time required to set offshore energy development in motion in frontier OCS areas. However, the existing process has its own built-in potential delays through court actions and challenges to locations of onshore facilities.

Codifying the rights of States would, at least, make it possible to anticipate delays and to know with some degree of certainty how much more time the process would take than it does under existing law.

"One cannot fault the USGS if they are adhering to the letter of the law with respect to divulgence of information or State involvement in offshore energy development decisions, but that does not mean that legislation could not be enacted to remedy the situation."

Environmental Official

"The Department of the Interior is not bound to an ironclad schedule and slippages do occur [in the OCS sale dates]. If State members of the Advisory Board ask the Office of OCS Program Coordination, they will be told what projected dates of lease sales are."

Federal Official

CONGRESSIONAL OPTIONS

1. Congress could require the Department of the Interior to solicit State comments on proposed lease sales, State proposals for stipulations to be written into leases, and State comments on development plans to protect economic and environmental interests. The Department of the Interior could be required to explain in writing why any State proposal was rejected and States could have a right of appeal.

2. Congress could require enforcing agencies to submit to the States long-range and detailed plans for enforcing lessee compliance with operating orders, evaluate State comments on the plans, and modify the plans, or explain a failure to modify them, to accommodate State objections.

3. Congress could require that an impact statement be prepared to accompany each development plan and that major development plans include detailed descriptive, design, and procedural information on offshore and onshore facilities that industry wants to build.

2. Traffic patterns off the Mid-Atlantic coast tend to pass directly through potential rig locations while those in the Gulf have, to date, circumvented major concentrations of rigs.
3. The weather conditions, including wind, sea-state and fog, are more severe for longer periods of time in the Atlantic than in the Gulf.

The Maritime Administration of the Department of Commerce has agreed these factors increase the risk of contact between ships and structures, but Commerce believes that if all offshore structures are precisely marked and made known to mariners and equipped with warning lights, sound signals, and radar beacons or transponders, vessels should be generally able to avoid them without traffic control systems. Traffic control systems affect the speed, route, and fuel consumption of waterborne commerce, according to a Department spokesman. Because of this adverse economic impact on the shipping community, Commerce is reluctant to have new traffic control systems instituted.

In addition to commercial shipping vessels, more than 275 commercial fishing vessels operate out of New Jersey and Delaware and large numbers of fishermen from New England and the South Atlantic States operate in the offshore region nearby. Foreign fishing outside the 12-mile limit also is substantial. The number of foreign fishing ships sighted was more than 100 in one month in the Mid-Atlantic during the past year.

The fin fishing and scalloping areas which are of prime importance to U.S. fisheries cover a large portion of the Baltimore Canyon lease areas under consideration. Several areas proposed for leasing have been excluded from the proposed lease sale by the Interior Department at the request of the Atlantic Offshore Fish and Lobster Association.⁴

Sport fishing is very extensive in the New Jersey-Delaware offshore region, but statistics are not available to document numbers of vessels or fishermen currently utilizing this area. Many charter fishing boats and larger private sport-fishing boats regularly voyage offshore, and various angler's guides show locations of tuna, marlin, dolphin, bluefish, and other species in the region of proposed leasing. Offshore structures may attract marine life and encourage an increase in fish population

"Due to the higher density of ship traffic in the Mid-Atlantic, it may be advisable to establish under Coast Guard jurisdiction a traffic-control system for those areas with use-conflicts and major navigational hazards."

Federal Official

3552

Appalachian highlands.⁵ Because sound is reflected by different layers of rock through which it travels, the records of the soundwaves returning to the survey ships can be processed by computers to give an interpreter a detailed picture of the rock formations the soundwaves have penetrated.

A seismic survey is a rough and indirect measure of petroleum resource potential in a region and is most uncertain when it is used in a frontier area that has never been drilled such as the Baltimore Canyon Trough.

If oil is discovered in the amounts projected by geologists using seismic survey results these ships will continue to operate until 1990, overlapping the start of exploration and production drilling in an effort to outline possible areas where oil and natural gas might exist. Figure IV-3 summarizes the oil exploration and development activities that OTA has projected between now and 1995.

Although crude, seismic data is used to indicate the size and extent of potential oil fields. For this reason, the unsuccessful attempts of New Jersey and Delaware to obtain seismic data from the Government have been a source of irritation for many officials. The U.S. Geological Survey (USGS) itself has conducted some seismic surveys and the data, theoretically, could be transmitted to the States. The USGS also has various kinds of seismic data purchased or obtained from industry as a requirement for permits for seismic surveying. These data, however, are proprietary information and are not available to the States.

Delaware State Geologist Robert Jordan told OTA that, the States have been pushing USGS, without success, to make so-called "public" information available more quickly. If the USGS surveys were made available to the States 2 or 3 years in advance of a lease sale, he said, the States probably would have adequate information about the OCS for planning purposes.

Resource Estimates

It is common practice to use seismic survey data, measurements of magnetic fields, gravity and subsea geology as well as various indicators of past trapping of hydrocarbon deposits to make judgments of potential resources in a region. The oil industry invests substantially in surveys, data analysis, and expert judgments to make these estimates but does not publish specific results.

Based on seismic and other proprietary geophysical data, the U.S. Geological Survey has made several estimates of the resources in the Baltimore Canyon Trough. These estimates have changed several times over the past 2 years and even the methods of making estimates have been debated among geologists in industry and government.

The USGS resource estimates for the Baltimore Canyon Trough were revised downward by about 50 percent in the last 2 years. The estimates are now given in terms of probabilities and ranges of possible discovery and recovery. The present estimate for the median of probable resource was announced for many OCS regions, including the Baltimore Canyon Trough in May 1975. The estimate was 1.8 billion barrels of oil and 5.3 trillion cubic feet of natural gas.⁶ For the area which is being leased first, the USGS estimated in September 1975 that recoverable resources could range from 0.4 to 1.4 billion barrels of oil and from 2.6 to 9.4 trillion cubic feet of natural gas.

The continually changing nature of these figures indicates that they cannot be taken as any more than well-educated guesses about the amount of undiscovered resources.

Interior Department Preparations

Since the announcement that the Federal Government would accelerate the process of leasing Federal land on the Outer Continental Shelf for petroleum development, the Department of the Interior (DOI) and the Bureau of

review sections of the Environmental Impact Statement in advance of its publication. Because of standing orders within BLM, which were not rescinded after the assurance from the OCS policy office, State officials were also advised that they could review sections of the statement, but only in the New York office of BLM and only during certain hours of the day.

It was only after considerable complaining that changes were made in the BLM order and State officials were given easier access to information as it was being assembled. The misunderstanding eventually led to the adoption of internal guidelines for contact with the States through the EIS process at Interior.

The resulting guidelines, Instructional Memorandum No. 76, dealing with "Contacts with State governments through the OCS leasing process," requires that States be contacted to attend meetings during which activities like tentative tract selection are discussed, to participate in preparation of the EIS, and to review preliminary drafts of the EIS. Other procedures require that the States be informed of the EIS contents where appropriate, and advised of such activities as announcement of tentative tract selection, release of draft and final EIS, and notice of sale.

Line responsibility for OCS activities at Interior is divided between two bureaus, both of which have a wide range of other activities that overshadow their OCS responsibilities in terms of manpower and budget. The Bureau of Land Management is the lead agency in developing leasing programs and granting rights to offshore exploration and development. Once leases are signed, responsibility for supervising offshore activities passes to the U.S. Geological Survey (USGS), which is primarily a scientific agency with a limited regulatory role. The USGS is also responsible for topographic mapping, monitoring of domestic water resources, and locating and estimating the extent of deposits of all minerals under both public and private lands. The USGS drafts technical regulations for

offshore equipment and operations and enforces those regulations. The regulations have been, and continue to be, more concerned with specific items of equipment than with relationships between the equipment and the total oil and gas development system.

During the 14 months ending January 1976, the former Assistant Secretary for Program Development and Budget, Royston S. Hughes, was responsible for coordination of OCS activities at the Interior Department. It was an assignment he combined with managing the Department's budget, supervising policy planning and analysis, doing economic analysis of Department programs, and dealing with environmental and natural resource policy issues.

Officials in New Jersey and Delaware and at the Interior Department said that Hughes' departure to join the White House staff disrupted progress toward opening a line of communications through which substantive issues could be argued to conclusion. State officials also insisted that the lines of communication depended on Hughes being in the position he held, not on the way in which Interior was organized to deal with the States.¹²

Despite the fact that the program to lease tracts off the Mid-Atlantic coast had moved through several crucial phases, the position of the OCS staff director was vacant from September, 1975 to March 1, 1976, when Alan Powers was hired to replace Darius Gaskins, who had returned to academic life. The position of OCS Coordinator/Assistant Secretary was vacant from the time of Hughes' resignation until May 21, 1976, when Ronald Coleman was confirmed to replace him. In the interim, the Deputy Assistant Secretary for Program Development and Budget, Stanley D. Doremus, acted as coordinator.

A plan for reorganizing the OCS offices was completed early in 1976 for consideration by the Secretary of the Interior.¹³

In general, it called for the Assistant Secre-

tary for Program Development and Budget to continue combining OCS coordination with his other responsibilities. In addition, the plan called for a fulltime OCS director who would report to the assistant secretary. The office would be responsible for analyzing OCS policies, assuring the participation of States in decisions, resolving differences among Interior officials who have line responsibility for offshore oil development, and coordinating studies involving OCS activities.

The plan would not change line responsibility for any aspect of offshore oil development. It contained no recommendations as to the size of staff required to coordinate offshore development. The plan, in effect, continued the structure that existed before Assistant Secretary Hughes left Interior.

Based on experience of the 2 years since the Administration adopted a policy of accelerated offshore oil development and because of fragmented responsibility and lack of a single leader, the present structure probably will not be adequate to solve the problems of coordination with other Federal agencies and with the coastal States. These problems will intensify when offshore development begins in the Mid-Atlantic.

Selection of the Lease Area

For administrative purposes, the Outer Continental Shelf is divided into a chessboard pattern of tracts each containing a maximum of 5,760 acres or 9 square miles. Oil companies bid for leases by tract rather than by oil-bearing structures.

On March 25, 1975, the Bureau of Land Management, which acts as agent for the Interior Department in lease sales, called for nominations by the oil industry of tracts it would like to have offered for leases. Oil companies designated 557 tracts covering 3.1 million acres of the Outer Continental Shelf—about half of the Trough area which runs roughly parallel to the Atlantic coast for 150

miles between New York and the north coast of Virginia.¹⁴

In August 1975, BLM selected 154 tracts covering 876,750 acres from among those nominated and tentatively scheduled a sale of leases for the tracts for May 1976. (See figure IV-7.) Some of the 557 tracts nominated by oil companies were eliminated because of concerns among commercial fishermen that oil operations would interfere with their activities. In other cases, BLM gave no reason for withdrawing nominated tracts from the lease sale.¹⁵

The final decision to hold the Mid-Atlantic Lease Sale #40 was made by Secretary of the Interior Thomas Kleppe late in June and the sale was finally held on August 17 in New York City.

Environmental Impact Statements

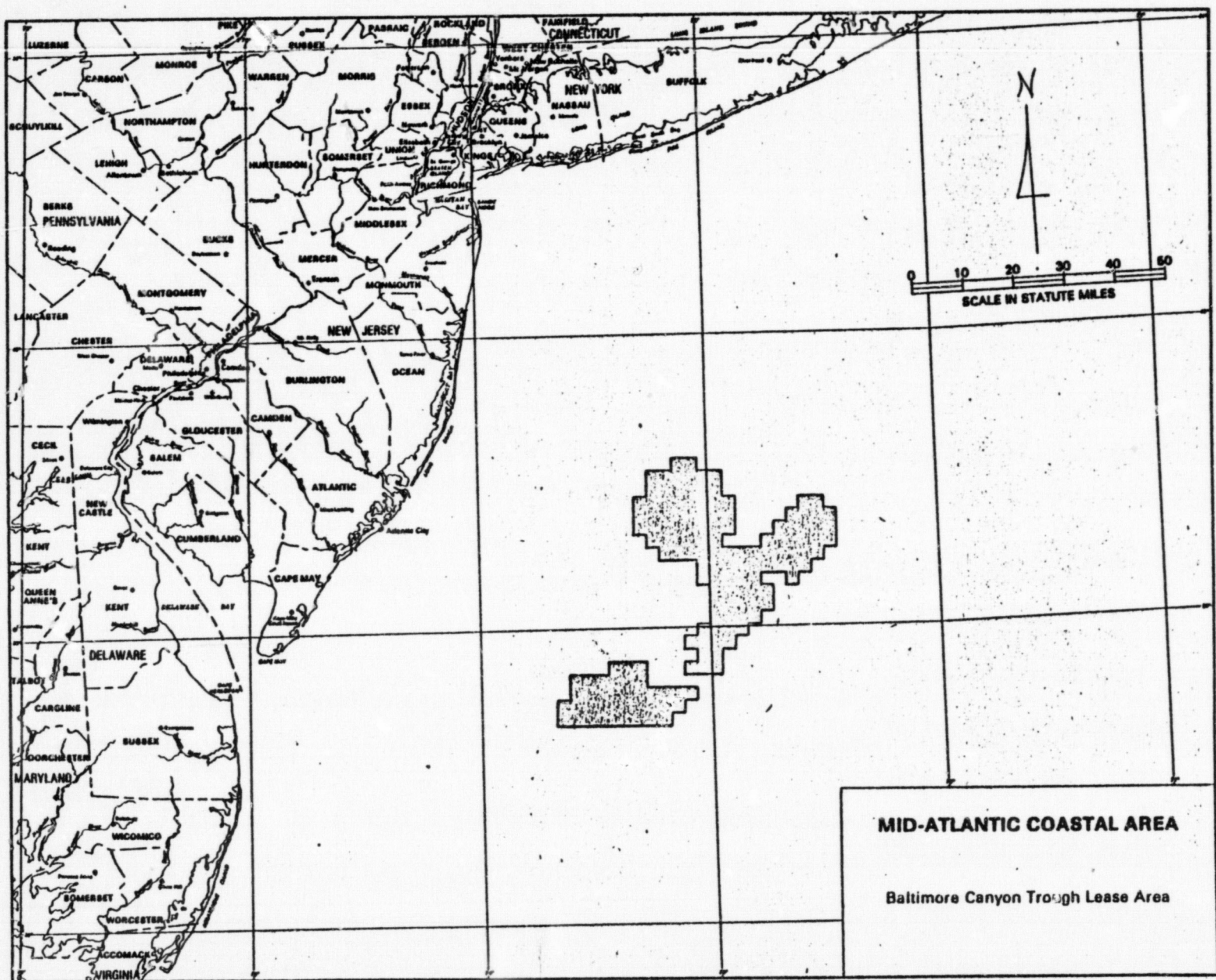
The most comprehensive packages of information which were provided to the States prior to the sale were the environmental impact statements (EIS) on the Baltimore Canyon Trough Lease Sale #40. The environmental impact statement is required by the National Environmental Policy Act (NEPA) for any Federal action that may have a "significant" effect on the environment.

Preparation of the document was largely the responsibility of the regional BLM office in New York. But staffing problems at the New York City office forced BLM to choose in early 1975 between meeting a deadline for the draft EIS and taking time to do research on coastal impacts at the county and local rather than the State level. BLM officials chose to rely on secondary data for such important data as tourist income to Cape May County and other New Jersey coastal areas. Although Interior claimed that contractor-prepared data was used for overall consistency among the tourist areas, in the case of Cape May County, the decision resulted in a basic conflict between the draft impact statement's assessment that annual

Source: Office of Technology Assessment and U.S. Department of the Interior.



Figure IV-7. Baltimore Canyon Trough lease sale area



tourist receipts for the County were \$33 million and County records that showed the receipts as \$120 million.¹⁶ After protests by Cape May County and the State of New Jersey, tourist income figures were revised in the final EIS to reflect the county's tabulation.

The draft EIS was issued December 10, 1975, and circulated for comments by Federal, State, and local agencies. Public hearings were held January 27–30, 1976, in Atlantic City, N.J., and the final impact statement was released May 26, 1976.

Both impact statements were prepared without benefit of recent updated guidelines or regulations as to content. The only applicable guidelines for preparation of EIS in Interior are contained in two manuals and an instructional memorandum. Neither manual is more recent than 1972.¹⁷ No recent manuals implementing CEQ guidelines of 1973 have been issued, although BLM did say that a revised manual is currently in preparation.¹⁸

The environmental impact statement is supposed to guide the Secretary on the question of whether a lease sale should be held and which tracts should be leased after consideration of the proposed action, the consequences of that action, and the alternatives.

But State officials and some participants in the OTA public participation program expressed doubt that the impact statement for the Mid-Atlantic was adequate for that purpose.

The declared intent by BLM to "lease in all frontier areas by 1978," including the Mid-Atlantic, has led to an impression among New Jersey and Delaware officials that the EIS process was a procedural requirement unrelated to the actual leasing decision.¹⁹

Predicting the environmental consequences of any proposed action must, of necessity, involve some uncertainties and some guesswork. In the case of OCS development, some of the most specific and significant impacts

cannot be predicted before exploratory drilling produces information on the quantity and location of OCS oil and gas. Despite these limitations, pre-lease environmental impact statements can be made more responsive to State needs by requiring that the EIS contain details of alternative "exploration plans," including possible locations of onshore support facilities for exploration, complete sets of OCS orders and lease stipulations covering specific geographic regions. To insure that the EIS contains as much useful information as possible, BLM could be required to solicit—in advance of preparation of the EIS—written comments by affected States on information they wish to have developed and included. Joint Federal-State preparation of the EIS also could avoid some of the difficulties encountered in the Mid-Atlantic statement where States and localities found that information about their areas was either inaccurate or missing. An additional requirement could be imposed that would call for the draft EIS to be submitted to the affected States well before it is released, with release conditional upon State agreement that the draft contains accurate and relevant information about the States.

The basic decision as to whether an impact statement will be written is left to the Federal agency initiating the "major Federal action." There are only departmental guidelines on what constitutes a "major Federal action" for purposes of NEPA, and Interior officials concede that ultimately the decision on whether a statement is required is "a judgmental one" made by "responsible Federal officials."²⁰ In the case of OCS activities, Interior has determined that the major action is the decision to lease and prepares impact statements at that stage. Subsequent stages, such as exploration or development of the leases, are not considered major actions and separate impact studies are not made.

Presently, the State role with regard to NEPA procedures—consisting primarily of written comments and oral testimony on the

draft EIS—is, at best, that of commentator. State comments on an EIS are not binding on a Secretary of the Interior when he is deciding whether to hold an OCS lease sale that would affect coastal States. State recourse to the courts is purely procedural. A State can prevail temporarily, and thus delay a lease sale, if it can argue successfully that the Interior Department has not fulfilled the obligations of the Act, but it cannot reverse a decision on the merits of its case.

States question whether the timing or the contents of recent EISs qualify as decision-making tools for the Secretary rather than as justifications for his decisions.

The National Environmental Policy Act gives the States 30 days to comment on the final EIS but Secretary Kleppe announced his decision to hold Lease Sale #40 only 21 days after the final statement for the Mid-Atlantic was released and without waiting for all the comments to come in.

Environmental and Other Studies

The EIS is supposed to guide the Secretary on the question of whether a lease sale should be held and which tracts should be leased. But it can do that only if it contains some minimum information gathered through baseline studies which are completed before the EIS is written. Without such data a Secretary cannot decide which offshore and onshore areas are environmentally sensitive or are otherwise not suitable for drilling or for siting of exploratory support facilities. However, the environmental baseline study for the Mid-Atlantic area will not even be completed until February 1977—nearly 6 months after the lease sale.

Baseline studies are intended to provide information about the existing chemical and physical state of waters before oil operations begin so that monitoring in later years can provide scientists with data to use to determine whether changes in marine-life patterns are associated with oil production.²¹

The Bureau of Land Management presently conducts an environmental studies program in OCS regions under a general mandate to collect environmental baseline data and monitor environmental changes in offshore areas under development. Prior to initiating these studies, BLM determines the kinds and amounts of data needed in each OCS lease area, usually after consulting State and local groups and the OCS Environmental Advisory Committee and holding planning conferences and workshops to design the studies. BLM usually contracts with private or university groups for the studies or, in some cases, delegates the work to the Commerce Department's National Oceanic and Atmospheric Administration.²²

NOAA is presently conducting a broad range of environmental studies for BLM. In the Mid-Atlantic, the Virginia Institute of Marine Science is under contract to BLM to conduct an offshore baseline study only. In all cases, lease sales are planned before any data from these studies are available and, therefore, the timing of the studies has been severely criticized.²³ It is evident that the environmental studies to date are useful neither for the EIS process or to affect a leasing decision because they are not completed in time to be used. It also is not clear whether later OCS management decisions could or would be affected by data from environmental studies. Certainly there is no firm requirement to utilize the data. Interior has even opposed legislation which would give it the power to cancel leases if serious environmental problems were identified by the studies.

Presumably, a monitoring program in an OCS region where oil is being produced may detect adverse environmental impacts. However, no formal procedures exist for using monitoring data to regulate production activities. Some State representatives claim that a formal method to tie environmental studies to management decisions is needed. Others claim that too much effort is being

spent on these studies, that a minimum of critical baseline and monitoring data is needed at leasing time, and that only after a discovery is made should environmental studies receive serious attention.²⁴

BLM also handles or regulates the collection and dissemination of other types of information in addition to that gathered in baseline studies and environmental monitoring.

One example is a contract for a comparison of costs and benefits of oil development as it relates to coastal areas. This contract was sent out for bids in February 1976, nearly a year after the call for nomination of tracts for leasing, despite the fact that the States had been expressing concern for more than 2 years that they might have to underwrite part of the costs of offshore development by providing new roads, new schools, and other public service to support an increase in population.²⁵

Deadline for completion of the contract—assuming the deadline will be met—is June 1977, by which time exploratory drilling probably will be underway off New Jersey and Delaware.

Interior has explained the discrepancy in timing by saying that the study is not intended to turn out information that will be useful to the Mid-Atlantic. Rather, according to staff members in the office of the OCS Coordinator, it is intended to use the Mid-Atlantic as a model for developing a system of predicting costs and benefits for other frontier areas.²⁶

In another effort to collect and distribute data, the Bureau of Land Management and the Office of Coastal Zone Management planned a series of field trips to coastal States in early 1976 to ask State officials what information they required to begin planning to cope with the onshore impacts of offshore oil and natural gas development.

However, no plans were made to guarantee that studies and analysis would be initiated to answer the questions which the States might pose to the joint teams since many depart-

ments and agencies could be involved in answering the questions. This action could further undermine State confidence in the seriousness of the Federal Government's attempt to assist them in planning for OCS development.

According to Interior staff members, the list of data needs identified by the BLM/OCZM survey will be distributed to all agencies with potential interest or responsibility in the OCS and coastal zone so that each agency can deal with the problems in its own way. In a final report, BLM will identify needs that are common to all States, needs that are common to each leasing region, and needs that are specific to certain States. This report, which will be distributed to the States and Congress as well as the agencies, is expected in late 1975.²⁷

In interviews, Federal officials have emphasized the long lead-time involved in offshore development and said that they felt that the States were operating under a misapprehension that offshore development would occur suddenly. In fact, they said, platforms probably could not be installed off the New Jersey and Delaware coast before 1980 and development of the Baltimore Canyon Trough would be drawn out over a period of 20 years or more.

There is one aspect of the pattern of development, however, that could compress the lead times for offshore development. Oil companies contract with independent service companies for most of the goods and services involved in exploratory and production drilling. Some service companies would establish operations on the East Coast at the onset of exploration drilling, which could begin early in 1977. Service companies tend to cluster in the same area so that the first of these companies to establish an east coast base might very well make a long-lasting decision about the location of staging areas and other support facilities before either New Jersey or Delaware had completed a coastal zone management plan.

Coastal Zone Management

With the passage of the Coastal Zone Management Act of 1972, the 30 States eligible for funds under the CZM program gained a potential lever in their efforts to influence Interior Department policies. At present, however, the emphasis must be on the word "potential," because the key section of the Coastal Zone Management Act—the so-called "Federal consistency provision"—has yet to become effective.

The Act made funds available to coastal States and territories to develop coastal zone management programs. The Act contains broad guidelines for developing such programs, but leaves a large degree of flexibility to the States to meet their particular needs. While participation is voluntary, all 30 coastal States and three of four eligible territories have chosen to participate.

On completion of a coastal management program, a State submits its program to the Secretary of Commerce who approves or disapproves the program, depending on his judgment as to whether it meets legislative requirements. If the Secretary approves a State's program, the State becomes eligible to receive funds for the implementation and administration of its program. The approval of a State program also triggers the "Federal consistency" provision.

That provision, found in Section 307 of the Act, reads, in part, as follows:

After final approval by the Secretary of a State's management program, any application for a required Federal license or permit to conduct an activity affecting land or water uses in the coastal zone of that State shall provide in the application to the licensing or permitting agency a certification that the proposed activity complies with the State's approved program and that such activity will be conducted in a manner consistent with the program. At the

same time, the applicant shall furnish to the State or its designated agency a copy of the certification, with all necessary information and data. . . . At the earliest practicable time, the State or its designated agency shall notify the Federal agency concerned that the State concurs with or objects to the applicant's certification. . . . No license or permit shall be granted by the Federal agency until the State or its designated agency has concurred with the applicant's certification or until, by the State's failure to act, the concurrence is conclusively presumed, unless the Secretary . . . finds . . . that the activity is consistent with the objectives of this title or is otherwise necessary in the interest of national security. (Emphasis added.)

During the summer of 1976, the Office of Coastal Zone Management (OCZM) drew up a draft of regulations for implementing the Federal consistency policy.

The philosophy behind the regulations centers on the mutual "cooperation" and "involvement" of Federal and State agencies and is summed up in the draft:

. . . the consistency provisions are dependent upon the continuing cooperative, participatory and reasoned interaction of the coastal States and relevant Federal agencies set forth throughout the Act and highlighted in its legislative history. This one aspect of the many complementary activities States will undertake, will require the closest possible one-to-one involvement of the State and Federal community. The Secretary, and through him, NOAA and OCZM, will maintain responsibility for prudent administration of the Act and assuring that the views of the Federal agencies and the States are balanced within the framework of national CZM policies. In addition to its 'good offices,' NOAA will also utilize its

responsibility to evaluate the continuing performance of the States and its reporting responsibilities to the President and the Congress to assist in achieving the intergovernmental goals embodied in the Act and its consistency provisions.

The draft regulations also set up procedures for maintaining consistency of Federal projects, licenses, and permits with State coastal zone management programs. In the case of conflicts which cannot be resolved by the State and Federal agencies involved and the OCZM, the Secretary of Commerce makes final decisions "guided by a presumption of validity of the State agency's position except to the extent that the (Federal) applicant makes out a case for the proposed activity being either consistent with the purposes of the Act or necessary in the interest of national security or both."

The Office of Coastal Zone Management has not finally defined "national interest" but has suggested that States meet the requirement for considering national interest by developing a policy statement concerning the national interest in their coastal zone.

The Secretary's decision on whether the Federal action shall be allowed is final, except that he is bound to report to the President and Congress on all activities and projects which are not consistent with an approved State management program.

There is some uncertainty about just how much leverage the Federal consistency provision would give a State over OCS-related activity. It is clear that having an approved coastal zone management program would give the State an additional vehicle for influencing the location of those onshore and nearshore facilities, such as pipelines, which require a Federal permit. However, because the State's objection to a proposed Federal action can be overturned by the Secretary of Commerce, Federal consistency does not provide an absolute veto over actions the State deems undesirable. Despite that limitation,

the existence of the provision and the potential for delay that it gives a State should give a company seeking a permit, the permitting agency, and the Secretary of Commerce an incentive to work together to insure that State concerns are taken into account before any decisions about the location of facilities are made.

While the general relevance of the Coastal Zone Management Act to onshore and nearshore OCS-related facilities is clear, only under 1976 amendments to the Act was it specified that each Federal lease had to be submitted to each State with an approved coastal zone management program to determine whether the lease is consistent with the State program. The amendment specifically applies the consistency requirement to the basic steps in the OCS leasing process—exploration, development, and production—in an attempt to satisfy State needs for complete information, on a timely basis, about the details of the oil industry's offshore plans.

While the amendments give the States an important new point of access to the OCS decision process, they also will expedite OCS oil and gas development by specifying that once a lease is certified as consistent all individual activities described in detail in the leasing information submitted to the States also will be presumed consistent.

The leverage created by the "Federal consistency" provision is only potential at this time because no State has received approval for a coastal zone management program. In fact, the applicability of Federal consistency to OCS leasing was moot as far as New Jersey and Delaware was concerned because neither State had an approved management program at the time of the lease sale. (Approved programs in both States are not expected until early 1977.)

Grants to Delaware for coastal zone planning as of July 31, 1976, totaled \$511,666, of which \$102,000 was a supplemental grant to be used for work related to OCS development.

New Jersey grants total \$1,082,750, including \$377,000 in supplemental funds to be used by county planning offices to finance studies and planning for offshore development on a regional and more detailed scale than will be done by the State coastal zone planning office.

The 1976 amendments also intensify State needs for data about OCS activities and expected impacts because the amendments require that States plan for possible location of energy facilities in the coastal zone. The amendments also require that States show that they will be affected by energy facilities in order to qualify for planning grants and loans under the Act.

The Office of Coastal Zone Management (OCZM) could have a significant impact on offshore energy development when States begin to complete coastal zone plans. The Office has had a relatively minor role in offshore energy development to date. This could change when New Jersey and Delaware submit final plans and the Office must make judgments about whether the plans make sufficient allowance for coastal zone activities that are in the "national interest" and whether, in turn, Federal activities in coastal zones are "consistent" with State plans.

State officials have expressed a hope that once coastal plans are completed the Office of Coastal Zone Management would function as a clearinghouse for Federal activities and plans to help States sort out various Federal programs with coastal implications. They also have said they hope that once coastal plans are completed OCZM will assert authority to force coordination among Federal programs that involve coastlines.

With the passage of the 1976 amendments to the Coastal Zone Management Act, giving OCZM an additional \$1.2 billion for grants and loans to coastal States, Congress has additional criteria for determining whether OCZM is adequately asserting its role as coordinator.

State Views.

The list of specific grievances which State officials say arise from existing laws and practices is long. For example:

- A decision was made within the Bureau of Land Management in January to postpone the sale of Mid-Atlantic OCS leases from May 1976 to August or later. State officials had not been advised of the decision as late as March, although the decision was common knowledge among State officials as a result of informal discussions with BLM personnel.
- The Interior Department has refused to share seismic data with State officials on the ground that it is proprietary information. State officials could purchase the data from individual seismic survey companies and pay geologists to interpret the data to give the States early warning about the possible location of major exploration activities and, in turn, about specific areas of coastal impact.²⁸ Delaware officials were told by the Office of Coastal Zone Management that they could use Federal grants to pay for the data and interpretation which the Interior Department declines to share with them.²⁹ As of August 1, the State had spent nearly \$27,000 acquiring seismic data.
- The State of New Jersey proposed that the task of preparing an environmental impact statement be handled by the affected coastal States under contract to the Interior Department. The Interior Department said such an arrangement was not possible, but the Council on Environmental Quality advised OTA that it would be acceptable for the Interior Department to contract with a coastal State for data and informational support for Interior preparation of an EIS, including a State-oriented analysis of environmental impacts.

- State officials complain that there has been no single person or office within the Interior Department to which they could turn for answers to important questions about OCS development.
- They also say they have been forced to argue their right to information that should have been offered freely.
- State and county planners said that they had invested both money and manpower in gathering data to aid in assessing potential impacts of offshore energy development but that the draft EIS did not reflect the data that was forwarded to the Bureau of Land Management.
- Information which was supplied to the Bureau of Land Management about the importance of the tourist industry was not used in the environmental impact statement on the proposed Lease Sale #40 and was, in fact, replaced by inaccurate data which was obtained from other sources.³⁰
- The Outer Continental Shelf Lands Act of 1953 does not provide for State involvement in offshore energy development decisions and the States claim that the Interior Department has stuck to the letter of the law.
- Some State officials feel Congress has missed the mark in efforts to provide State access to the offshore energy process. One State geologist said "The proposed legislation seems to want to shake up the system almost in a punitive fashion...but the States still would stand somewhat on the outside. Having more power pulled into Congress wouldn't help the States."

Under the present system, there are several stages in the process where a form of State participation is possible but not required. In a "fact sheet" dated December 1975, the Bureau of Land Management listed eight steps in the

process (environmental study program, development of OCS orders, call for nominations, tract selection, draft of Environmental Impact Statement, public hearings and comments, decision by the Secretary, review of development plan) at which they note that there is "public participation."³¹ The States participate at each of these stages by three basic methods: (1) serving on advisory bodies (e.g., the OCS Research Management Advisory Board); (2) reviewing and commenting on various documents (draft impact statement, development plan); (3) being "consulted" before various actions are taken (e.g., tract selection and offer of tracts for sale).

The BLM has instituted some changes in the past year "in an attempt to meet concerns expressed by the public and the States to improve the leasing program."³² Included in the changes are provisions for State participation in the preparation of the final environmental impact statement and operating orders for leases off their shores. Interior has also issued a ban on joint bidding among major oil companies, cooperated with the States in securing access to proprietary geologic data from a stratigraphic test program for the Mid-Atlantic (although Interior officials told OTA they will not push industry to make similar information available in all cases), modified the bidding system, and proposed legislation for a loan program to deal with State needs for front-end money and a comprehensive oil spill liability and compensation plan.

Congress also is dealing with several pieces of legislation which will alter the processes involved in offshore leasing and development of oil and gas resources; establish ground rules for liability for oil spill damage; and place some aspects of energy development within the realm of the Coastal Zone Management Act of 1972.

No legislation, however, addresses the problems which the States view as most serious—problems that arise, by and large,

from the way in which Federal-State relationships in OCS matters are now structured. State officials feel that they have no power to negotiate in a serious way decisions that affect their responsibility to State residents both to

minimize harmful impacts that might result from OCS development and to assure supplies of energy that meet the needs of State residents generally and State industries in particular.

FUTURE ACTIVITIES

Lease Sale

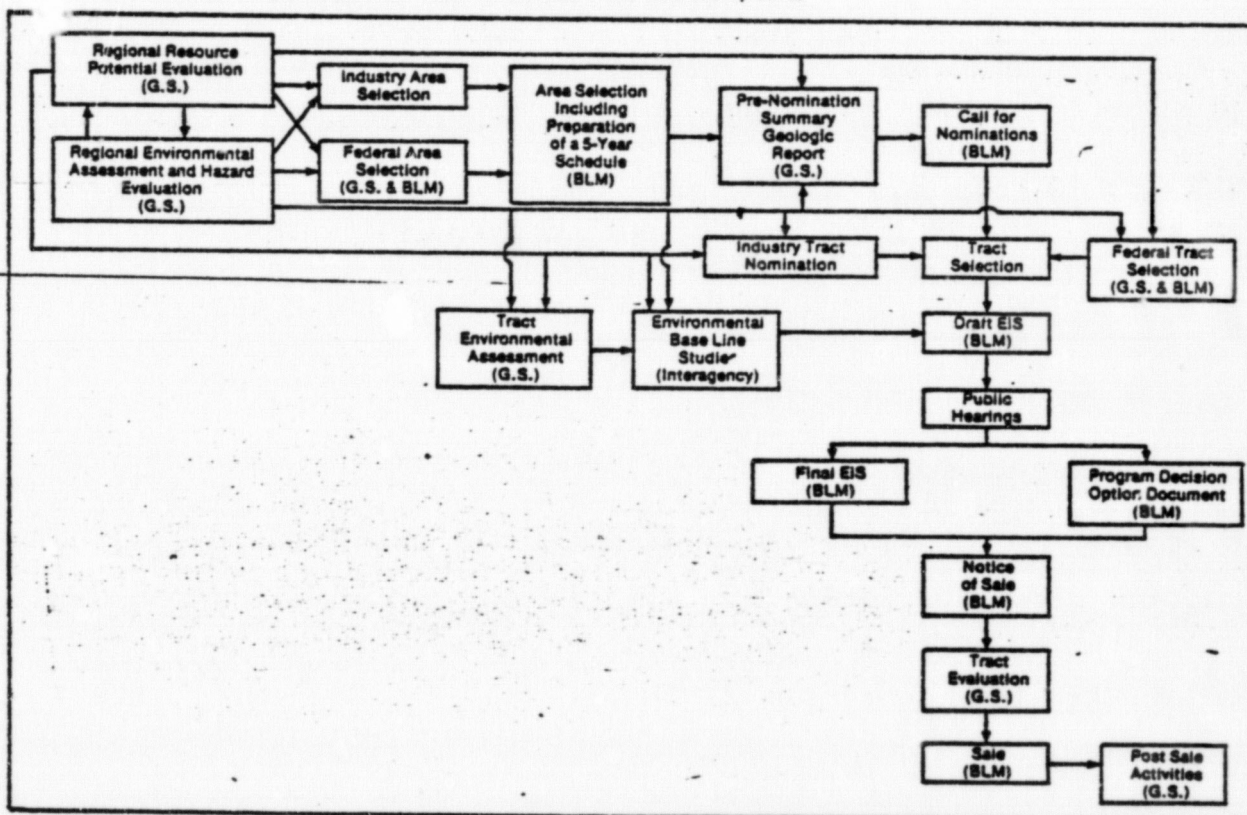
The lease sale for the Mid-Atlantic frontier was held on August 17, 1976, in New York City while legislation dealing with the system for leasing and developing the potential oil and gas fields was pending in Congress.

Several U.S. Senators and Representatives asked Secretary of the Interior Thomas Kleppe to delay the lease sale until after pending

amendments to the OCS Lands Act became law.

Kleppe responded that he felt "it would not be in the national interest" to delay because legislation had not yet been enacted and signed into law by the President and it was not clear that it would be.

Figure IV-3. OCS leasing procedures: information flow into decision points



Source: Draft Environmental Impact Statement Proposed Geological Geophysical Exploration, Department of the Interior, May 1975.

Kleppe said that in his opinion the present leasing program was not "seriously deficient" and the legislation under consideration would not clearly improve existing practices. In addition, he said, most of the provisions of the proposed legislation would be fully effective on Mid-Atlantic leases and others already issued.³³ However, a major section of the proposed legislation deals with State participation in the leasing decisions and with methods of leasing to insure competition among oil companies and participation of small firms. Those provisions, of course, could not be retroactive to leases which had already been sold.

Kleppe's determination to hold the lease sale on August 17 also ignored the fact that the State of New York, the Natural Resources Defense Council, Nassau County, N.Y., and Suffolk County, N.Y., had filed suit to halt the sale.

The sale set in motion events that will lead to at least some land and water impacts on Delaware and New Jersey whether or not oil and gas are discovered.

Virtually every phase of oil and gas exploration and development off the coast of New Jersey and Delaware would alter the physical, biological, and social environment to some degree. The biological environment could be affected by oil spills and other pollutants. The physical environment could be altered by the installation of platforms, the drilling process, the construction of pipelines, and the clearing of space for warehouse and service facilities. The social environment could be affected by expected increases in job opportunities, increases in population, and expanded need for public services.

Much of the information that is required to predict the degree to which the environment could be altered is unavailable. Much of what is available is based on resource estimates which may or may not be proved valid when actual drilling is undertaken. That situation cannot be changed but other types of data,

such as that on the effects of oil spills, can be improved by additional research.

The moving force in leasing, exploration, and development is the oil and gas companies operating on the basis of developing maximum energy resources at minimum cost. Their actions are monitored, regulated, and guided by as many as 15 Federal agencies; two State governments, and a number of county and municipal governments.³⁴

Top management of an oil company is involved in major decisions concerning Outer Continental Shelf activities at two points:

1. On the question of whether to bid for a lease on OCS tracts and at what price; and
2. On the question of whether to commit major funds for development on the basis of exploratory drilling results.

Most corporate decisions on bids are based on formulas that include such factors as a company's tax position, cash flow, and production costs and emphasize both the geological data available on a field and the price a company anticipates it will get for the oil once production has started.

Because offshore drilling platforms range in cost from \$25 million to \$50 million, depending on the depth of the water in which they are to be placed and many other factors, proceeding with development is a major management decision.

Other decisions during development of an OCS field are, by and large, technical and engineering decisions rather than policy decisions.

OTA studied the technology and deployment patterns that probably would follow the leasing of OCS land off New Jersey and Delaware as well as resulting impacts which could be projected through 1995. After Mid-Atlantic tracts are leased, the following actions will take place. The extent of each will depend

platforms which are supported by steel legs that are mounted on submerged pontoons. When operational, the pontoons float below the sea surface and the legs extend through the surface to hold the platform 50 to 60 feet above the water. They are usually moored to the sea floor with large anchors.

Drill ships contain the same equipment, quarters, and supplies as semi-submersibles arranged instead aboard a large ship, thus providing self-propulsion capability.

The arrival of exploratory rigs would start

in operation a system of support that would expand as the field was developed.

The rigs normally carry a crew of more than 100 persons who work 12-hour shifts for 7 to 14 days. Such a system requires about 217 people, including some shore supervisors. If existing practice were followed, more than half of the crews of exploratory rigs would return to the Gulf of Mexico area when they were on leave. In addition, a large shore and workboat support force would be required, reaching a total of about 260 workers for 10 exploratory rigs.

Figure IV-11. OTA assumptions for oil and gas development in Baltimore Canyon Trough at peak production of median- and high-recovery projections (reached about 1992)

OIL AND GAS PRODUCTION				LAND USE FOR ALL OCS ACTIVITIES PROJECTED	
	Median Recovery	High Recovery		Activity	Land Required
Oil Production (in million barrels per day)	313,000	650,000		Geophysical Surveys and Support	Docking space for one or two ships in coastal ports
Gas Production (in million cubic feet per day)	844	1,933		Exploratory Drilling Support	5 acres per rig in coastal ports
DRILLING RIG DEPLOYMENT				Platform Construction	500-1,000 acres for one major fabrication facility
	Zero Discovery	Median Recovery	High Recovery	Platform Installation Support	Docking space for tugboats and crane barges in a large port
Exploration Rigs (from start to peak)	3	3-5	3-10	Development Drilling Support	5 acres per rig in coastal ports
Production Rigs (peak level)	0	25	52	Pipeline Construction Support	Docking facilities and storage of 10-20 acres in large port
Production Wells (peak level)	0	600	1,248	Oil and Gas Production Support	½ acre per platform in coastal port
EMPLOYMENT FROM ALL OCS ACTIVITIES IN NEW JERSEY AND DELAWARE				Pipeline Corridors	2 corridors: approximately 90 miles total onshore, 20 miles each in coastal zone, <u>7.5 acres/mile right of way</u> ✓
	Median Recovery	High Recovery		Tank Farms	2 sites near the coast; total 50-75 acres
Direct Employment (peak—reached about 1985)	4,500	9,000		Gas Processing Plants	100 acres per plant near the coast

NOTES:

- Gas processing plants will be built in the region to handle all gas produced but no new refineries are expected
- Onshore pipelines and tank farms will be the major permanent coastal facilities required to handle the transportation of OCS oil produced
- Support bases for exploration and development drilling will be located at coastal ports in the region such as Atlantic City, Cape May or Lewes, Delaware
- Construction of platforms and support for major operations such as pipelaying may take place partially in the major port areas in the region and partially at traditional construction sites outside of the region

Source: Office of Technology Assessment.

officials say they are entitled to information about onshore impacts gained from exploration before a decision is made to permit development to proceed.³⁸

On November 4, 1974, the Interior Department published a revision of 30 CFR 250.34 which requires offshore oil and gas operators to submit to States both a technical development plan and a description of activities that would be associated with development.

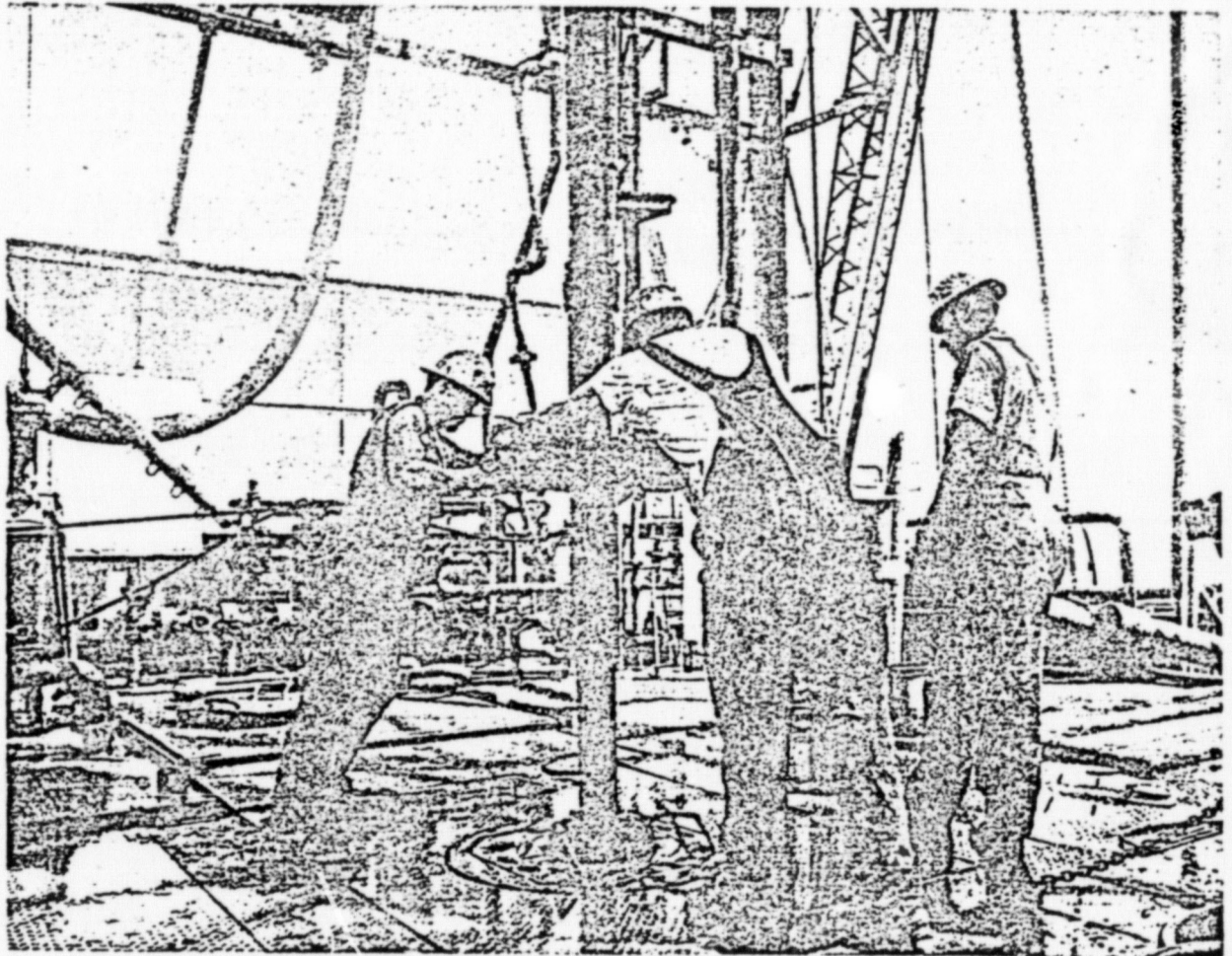
The regulation requires operators to deliver a development plan to the States 60 days

before it is filed with the Interior Department and a supplemental description 30 days before the development plan is filed.

Governors would be invited to comment on development plans but final decisions on whether plans contained sufficient information to meet either the terms of the regulation or the needs of the States would be made by the USGS's area oil and gas supervisor.

While regulations on development plans do require the industry to provide certain information to the States and while officials at In-

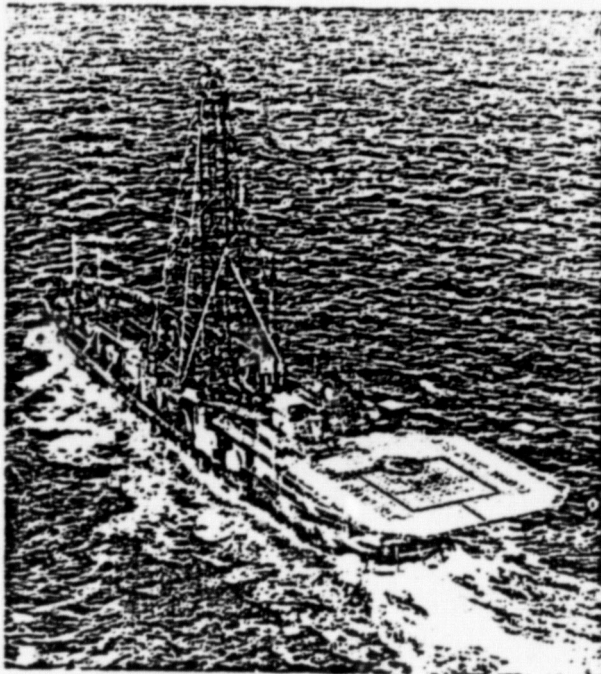
Figure IV-12. Drilling crews work with the drill string at an offshore well similar to those which will be put down in the Mid-Atlantic.



Source: Shell Oil Company.

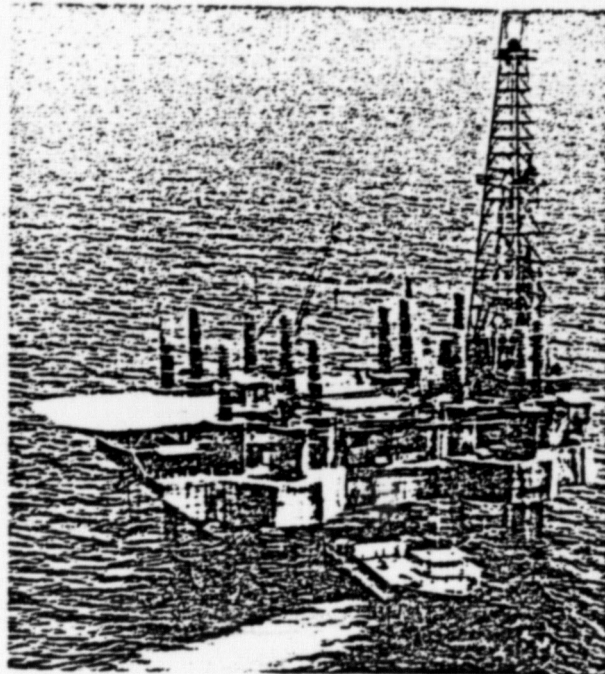
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Figure IV-13. Three exploratory rigs for possible use in the Mid-Atlantic



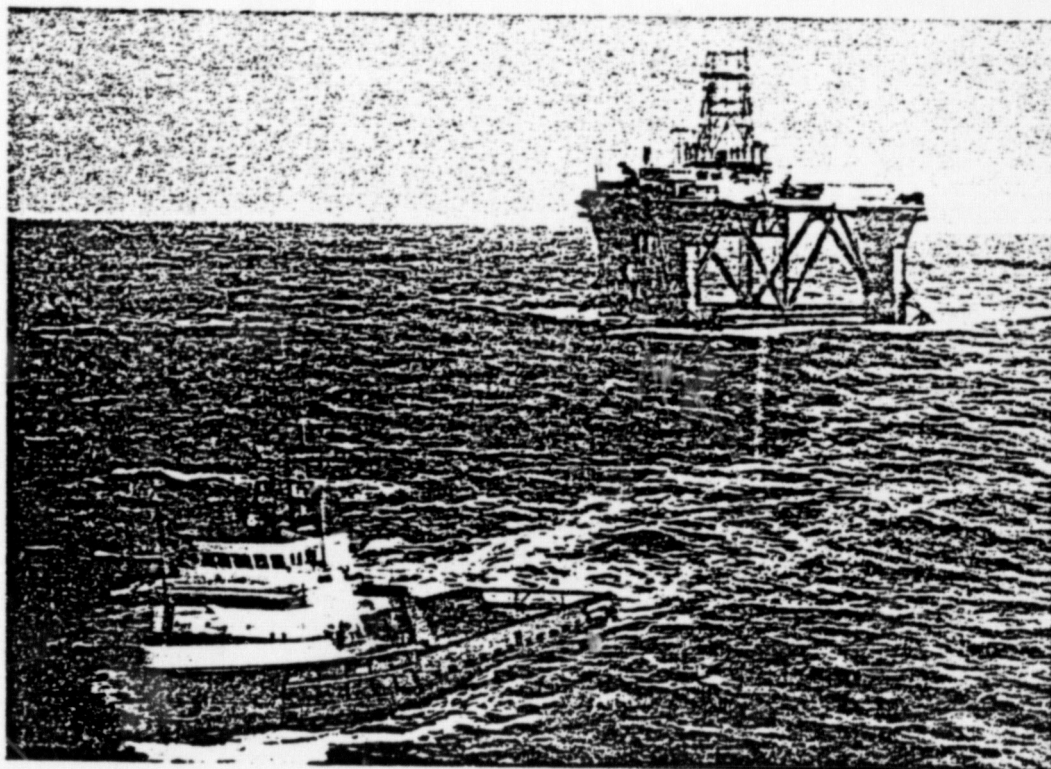
Drill ship

Source: Exxon Oil Company.



Jack-up rig

Source: Mobil Oil Corporation.



Semi-submersible rig

Source: Marine Engineering/Log.

terior are now asking the States what information they believe should be included in development plans, there is no description in law or regulations that specifies information that is to be provided to the States in development plans or related impact statements.

Information that could be required for inclusion in industry plans and in supplements to standard development plans include:

- description, quantity, and location of the resources discovered;
- complete description of the oil and gas production system, including platforms, gathering lines, pumping facilities, separation equipment, and pipelines;

- all operating procedures, including environmental and other safeguards and how these will be maintained;
- a detailed analysis of the site-specific environmental conditions for the offshore, nearshore, and onshore areas where oil and gas has been found and at which platforms and pipelines would enter; and
- a detailed description of the size, required land, personnel, and proposed sites for each onshore facility, including pipeline corridors, staging areas, supply boat docks, tank farms, gas processing plants, and transportation plans for all elements of the operation.

Figure IV-14. Assumed rates of exploratory drilling

Year	Zero Recovery Assumption		Median Recovery Assumption		High Recovery Assumption	
	Rigs	Wells	Rigs	Wells	Rigs	Wells
1977	3	12	3	12	3	12
1978	3	12	3	12	3	12
1979			5	20	6	24
1980			5	20	8	32
1981			5	20	10	40
1982			5	20	10	40
1983			5	20	10	40
1984			5	20	10	40
1985			5	20	10	40
1986			5	20	10	40
1987					10	40
1988					10	40
1989					10	40
1990					10	40
1991					10	40
Total Exploratory Wells		24		164		520

Summary of Assumptions	
• Drilling Begins in 1977	
• Each rig drills 4 holes/year	
• Basis for drilling program	
-Zero Case:	Stop in two years
-Median:	Explore 7 major traps plus additional exploration in intermediate traps
-High:	Explore 7 major 23 intermediate traps plus additional exploration

Source: Office of Technology Assessment.

The overall timing of the field development and production should be described, as well as the specific timing of each of the required facilities.

An EIS could be required to accompany development plans. The question of whether an EIS should be prepared is now left to the discretion of the USGS area supervisor (CFR 250.12). Such an EIS should incorporate all data gathered since the preparation of the draft EIS and throughout the exploratory phase as well as data to be gathered as soon as the industry begins to make proposals about specific aspects of the development plan. Included in this information should be:

- shallow geologic and oceanographic descriptions, including sediment behavior and identification of hazardous areas;
- biologic descriptions, including identification of sensitive areas;
- meteorological information; and
- information on other ocean uses in the area.

The EIS, which should be prepared jointly by the Federal agency and the affected States, should then compare various locations for each type of onshore and nearshore facility (including pipeline corridors) in terms of environmental and other consequences and should evaluate each set of alternatives with regard to consistency with the State's coastal zone management plan or comparable statements of State planning objectives for the coastal zone.

Production and Its Impacts

At peak production under the high-recovery assumption, the daily flow of oil and natural gas from the Mid-Atlantic would be 650,000 barrels a day. By comparison, the entire Gulf of Mexico, where proven reserves are dwindling, is now producing about 800,000 barrels a day.

The series of actions involved in production would have environmental, economic, and institutional consequences for New Jersey and Delaware. OTA has assumed, for the purpose of this section, no change in existing laws, regulations, or practices among oil companies or Federal, State, and local regulators.

None of the information that has been gathered during the study leads OTA researchers to conclude that oil and gas development off the Mid-Atlantic coast would produce irreversible damage or changes in patterns of life in either State, provided that the technologies were properly planned and engineered and their operations were strictly monitored. State officials, including Gov. Brendan T. Byrne of New Jersey and Gov. Sherman W. Tribbitt of Delaware, have said publicly and privately that they have reached similar conclusions.³⁹ They also have said repeatedly that in view of the potential for damage to their coastal areas, which are valued both for their environment and for the tourist income that they produce, the governors have an obligation to satisfy themselves that offshore development would be conducted at least as prudently as the States would proceed if they had control over the process.

PRODUCTION PLATFORMS

Working decisions during the development of a field are made by the oil company chosen as operator of the field by the owners of leases over the oil trap. The operator would contract for engineering studies for a development plan for the Baltimore Canyon Trough area, including locations of platforms, design, and locations of pipelines and size and location of tank farms. It is not likely that all elements of the system would be included in a first plan for development. The operator also would oversee construction of platforms and pipelines. In most cases, goods and services involved in developing offshore oil are provided under contract by independent companies.⁴⁰

Figure IV-17. continued

The total acreage given below is for onshore support bases which most likely would be located in coastal ports such as Atlantic City or Cape May, New Jersey, and Lewes, Delaware. The totals are for peak activity years, most likely between 1980 and 1985.

	Acreage for Median Recovery	Acreage for High Recovery
Exploratory Drilling Support	25	50
Development Drilling Support	55	120
Total Support	80	170

Source: Office of Technology Assessment.

It should be noted that the Coast Guard recently developed regulations for deepwater ports which, in many cases, cover technology and hardware similar or identical to that used in OCS operations. In fact, it is possible that two side-by-side structures—an OCS platform and a deepwater port platform—operating in the same environments and conducting operations with the same product at similar conditions could be regulated under quite different standards. The Coast Guard philosophy of regulation appears to be one of setting detailed, firm, and comprehensive rules for designing, building, and operating, and then carefully checking adherence to those rules. On the other hand, the USGS philosophy appears to be one of asking for industry's best efforts and then making broad judgments about its adequacy.⁴²

CONFLICTING OCEAN USES

The offshore region of New Jersey and Delaware is now used intensively for such traditional activities as commercial fishing, marine transportation, disposal of sewage sludge, and military operations. The most serious near-term offshore conflicts will probably be between proposed oil and gas operations and both commercial fishing and commercial shipping. Both coastal and trans-Atlantic traffic lanes from the major ports of New York and Philadelphia lead through or

near the lease area. Many commercial fishing vessels operating out of New Jersey and Delaware and fishermen from other Atlantic coastal States also operate in the offshore waters, as do foreign fishermen. Increased marine traffic and manmade offshore structures resulting from oil and gas operations will increase the collision risk for all ship operators in the region. Offshore structures may also prevent access to some traditional fishing areas, fishing gear may be damaged by large debris accidentally dropped from oil support vessels and structures, and oil spills could cause temporary or long-term losses for fishermen.

In a letter to the Bureau of Land Management from the EPA commenting on the draft EIS for the Mid-Atlantic lease sale, the following statement was made about possible navigation hazards:

We are concerned that the conflict between heavy vessel traffic in the Mid-Atlantic and the presence of offshore platforms could, in the event of the lease sale, become serious. Five tracts are in the direct path of an existing shipping lane, six other tracts are considered most hazardous to navigation, and thirty-one additional tracts are in conflict with or in close proximity to commonly used shipping routes. Any accidents or collisions involving platforms and vessels, particularly during anticipated storms or fog, could pose a substantial threat of adverse environmental, social, and economic impacts on the shoreline communities where recreational values of wetlands and beaches are high. Considering that adequate technology does not exist for containment of oil on the high seas, there is a probability that oil spills would impact the sensitive shorelines.⁴³

SUPPORT BASES

Direct support for development drilling would require about 55 acres of staging land if

the Baltimore Canyon Trough area were to yield 1.8 billion barrels of oil, and about 120 acres if the yield were 4.6 billion barrels. This land is in addition to that required for exploratory drilling. Figure IV-17 summarizes total land requirements for support bases likely in the region.

Five possible areas in the New Jersey-Delaware region could serve as staging areas for offshore development, three coastal sites and the port complexes of New York City and Philadelphia-Camden. All three coastal sites—Atlantic City and Cape May, N.J., and Lewes, Del.—would meet such staging area requirements as availability of good supply boat harbors with about 15 feet of water depth, accessibility by rail, proximity to lease sites, and availability of land for storage and service facilities.

Service firms under contract to oil companies would choose staging areas on the basis of lowest overall operating cost, which cannot be evaluated in enough detail at this time to permit determination of the most likely sites. Operating from coastal sites, supply boats would travel between 80 and 250 fewer miles on each round trip to the oil field than they would if they were based at either inland port. The resulting savings, however, might be offset by lower land prices at inland areas or by the cost of warehouse facilities which would have to be built if coastal sites were chosen.

Atlantic City, N.J., could provide enough acreage to meet all requirements for support development if median estimates of recoverable oil and natural gas are correct. If exploration activities expanded, additional staging areas might be required, such as Cape May and Lewes.

At present, State and local government control of land use provides the greatest leverage over OCS-related development. With State-to-State variations, the control of land through

zoning and permit powers, including State powers relating to air and water pollution, is an effective tool for controlling development. Nonetheless, in the case of OCS development, States and localities find themselves limited to reacting to Federal decisions which set in motion chains of events that can affect population levels, employment patterns, requirements for State and local expenditures for public facilities and services, and social patterns. With key OCS decisions being made at the Federal level, States can only approve or disapprove location of refineries, platform construction sites, and service bases; or react favorably or unfavorably to general oil company efforts to build OCS-support facilities. They cannot participate in the process which leads to such decisions. Their only option is to try to exercise their legal rights to choose whether or not to approve OCS-related facilities after the fact of Federal decisions, oil company investments, and actual oil discoveries.

CAPITAL INVESTMENT

Development of oil and natural gas off the New Jersey and Delaware coast could involve \$2 billion to \$4 billion in initial capital investments and could influence the U.S. balance of trade by as much as \$50 billion over the life of the project, based on very rough figures for capital investment and discount over the life of the field.

Figure IV-18. Total new land requirements related to OCS development during years of peak activity (1980 to 1990) in New Jersey and Delaware under high recovery assumptions

Activity	Acreage Required
Support Bases in Coastal Ports	170
Pipeline Corridors in Coastal Zone	150
Pipeline Corridors outside Coastal Zone	550
Tank Farms	75
Gas Processing Plants	700
Total Peak Land Requirement	1,645

Source: Office of Technology Assessment.

Direct employment in New Jersey and Delaware would peak at about 9,000 workers if the high estimate of resources were correct and at about 4,500 workers if the median estimate of resources were correct. Capital expenditures would peak during the seventh year of development at approximately \$1 billion. Peak land requirements are estimated to be 1,645 acres in New Jersey and Delaware. Of that, 320 acres would be coastal land and the remainder would be inland. Seven hundred acres would be required for pipeline corridors which probably would parallel existing highways or railroad lines. Figure IV-18 summarizes the total new land required.

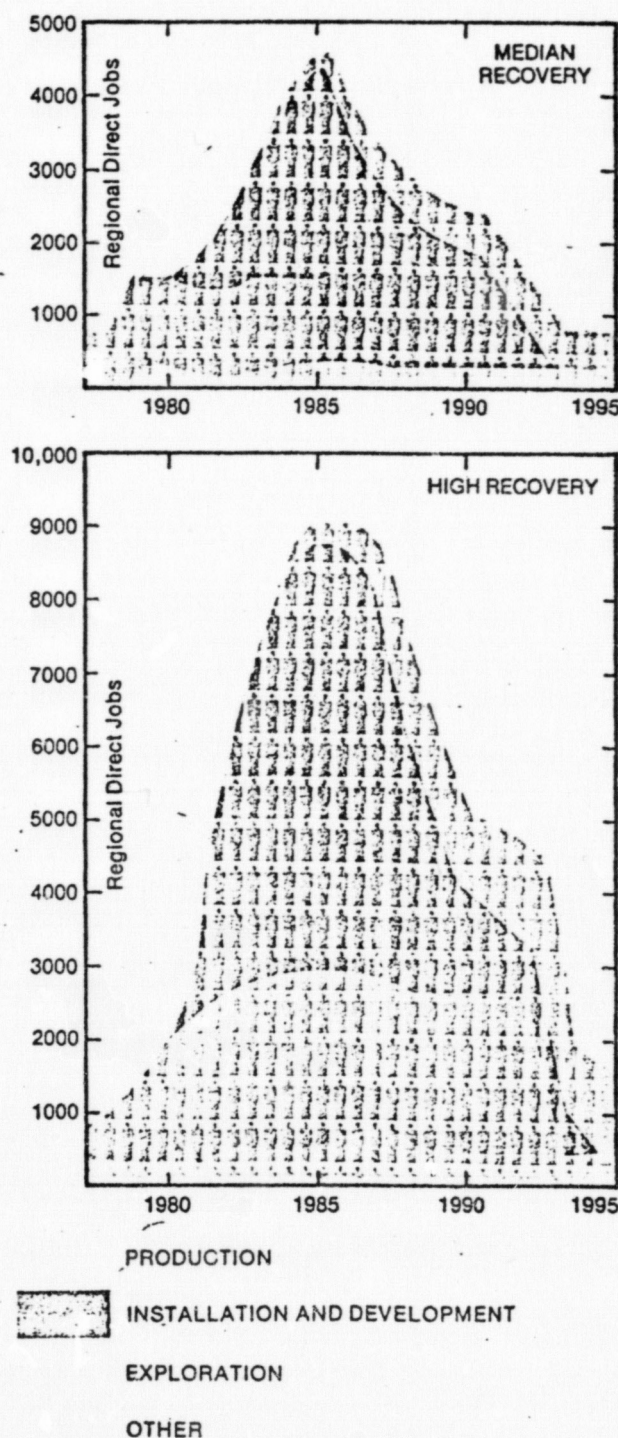
FISCAL EFFECTS

Analysis of the effects of offshore development on tax revenues in a wide variety of coastal States, including New Jersey and Delaware, shows that in States where major onshore facilities are located the per capita tax revenues from OCS activities probably would be significantly higher than from businesses and individuals in the rest of the State economy except during one time period. During the first 2 or 3 years of OCS-related development, very little revenue would be received from OCS-related businesses so that per capita revenues would be lower than the statewide average. Beginning in the fourth year, however, the net statewide fiscal impacts would become favorable as investments were made in capital-intensive onshore facilities needed during the production phase.⁴⁴

OTA has prepared a fiscal analysis of costs and revenues from OCS activities in the States of New Jersey and Delaware assuming projected development associated with discovery of 1.8 billion barrels of oil in the Baltimore Canyon Trough.

The fiscal analysis concludes that, in general, per capita tax revenues from OCS-related activities would be considerably higher from the fourth year onward than statewide

Figure IV-19. Direct employment from all OCS activities under the high and median recovery assumptions



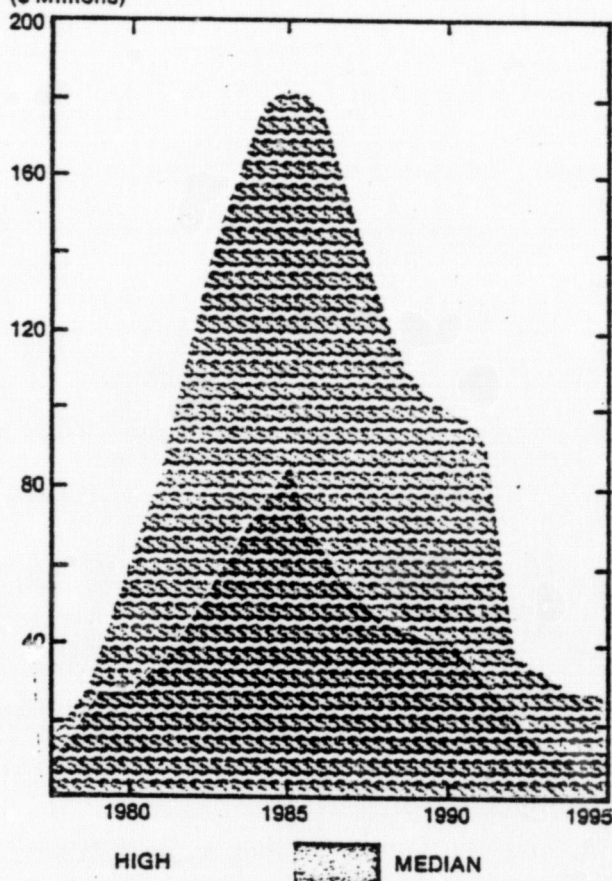
Source: Office of Technology Assessment.

per capita revenues from other sectors under the assumptions of the study.

There is an important caveat to the conclusion. It assumes that public costs of supporting OCS bases and providing services to OCS-related workers and their families in one State would be offset by revenues from onshore investments in that same State. If, however, most of the support areas and OCS employees were located in one State and the landings of oil and natural gas were made in another, the results would be very different.

In 1972, per capita State and local revenues in New Jersey were \$847. Before any major

Figure IV-20. Annual earnings of direct regional OCS workers under median and high recovery assumptions
Annual Payroll
(\$ Millions)



Source: Office of Technology Assessment.

onshore investments occurred, revenues produced by OCS activities would be primarily those from taxes on individuals which average \$512 per capita in New Jersey. Assuming that per capita expenditures for public services are about equal to total per capita revenues of \$847, per capita expenditures to support OCS-related population would exceed the per capita revenues from OCS activities by about \$335 during the first 2 years of development. The gap would decrease to \$225 in the third year as some business taxes accrued.

The picture would change in the fourth year when major onshore investments would be made for pipelines, tank farms, and natural gas processing plants. In the year when these investments were made, the State would receive revenues from a real estate transfer tax and from its sales tax (or equivalent use tax). Since these are assumed to be concentrated in the fourth year, the per capita tax revenue is calculated to jump nearly \$11,000 in that year in New Jersey. The jump would not be so pronounced in Delaware where there is presently no sales tax.

In subsequent years, the property tax would become the main source of revenues. Property tax revenues would decline on a per capita basis for a period because they would be divided among an increasing direct population engaged in offshore construction and development drilling. Finally, per capita property tax revenues would begin to rise in the ninth year when completion of construction would lead to a decrease in OCS-related population. For all years after the fourth year, per capita revenues from OCS activities would substantially exceed the statewide average.

If either business gross receipts or corporate income taxes are added, the per capita revenues accruing from OCS-related activities would be even higher after the sixth year or so as production was undertaken. The other uncertainty—that some components of onshore

construction may be exempt from sales taxation—could reduce actual sales tax revenues below the calculated levels. However, this would not alter the conclusion that, for most States, the per capita tax revenues produced by OCS development should exceed the statewide average after the first 3 years of development.

There are important qualifications to these conclusions. First, higher than average per capita tax revenues from OCS development activities imply net fiscal benefits only if these activities do not require proportionately high or higher expenditures for public facilities and services. In some States, OCS development may require facilities such as roads in areas of unusually high construction costs. This could lead to a net negative fiscal impact in spite of relatively high per capita tax revenues.

Second, the analysis deals only with normal governmental expenditures and does not take into account such less easily quantified costs as environmental degradation and loss of recreational lands.

Thus, the conclusion that there may be net fiscal benefits does not imply that there are no uncompensated costs of development.

Third, while there may be a net fiscal benefit on a statewide basis, there could still be serious localized fiscal problems if development were concentrated in a small community. One of these problems is that during the first 3 years when revenues are low, a local government may not have the fiscal capacity to provide public services to the related population, and even in year four the major revenues are sales taxes which accrue primarily to the State rather than local government. It may also be the case that onshore investments subject to sales and property taxation are in one local government jurisdiction while a majority of the associated population resides in another. This same problem may occur between States if OCS exploration and

development activities are supported from bases in a State different from the one in which the oil and/or gas is ultimately landed.

STATE ROLE IN DEVELOPMENT AND PRODUCTION

Because of the uncertainty, State officials have been increasingly insistent that they be brought into the development process as participants rather than observers. State officials have been, and continue to be, concerned that such critical decisions as choosing pipeline corridors, siting tank farms, and locating staging areas may be made without adequate consultation and that, in the end, States would have to accept the decisions or try to block development. The lack of State participation at early stages of the decision process therefore creates an adversary relationship in which the State's only option for controlling adverse onshore impacts is to obstruct, possibly through lengthy litigation, thus bringing about the very delay in OCS development that the Federal Government is trying to avoid.

The States and localities have several avenues for blocking OCS development. The most dramatic is simply to file suit to block a proposed lease sale. Neither New Jersey nor Delaware has threatened such action publicly. However, staff members of the Attorneys General of both States have explored courses of legal action open to them if the Governor of either New Jersey or Delaware were to decide at some future date that the State should try to block or delay offshore development.

States and localities also have some legal basis for intervening later in the development process to block decisions that they oppose. For example, they could refuse to permit the construction of pipelines in their coastal zones by invoking their rights under either the 10th Amendment or their own riparian laws. However, State and local officials are concerned about reliance upon such measures for several reasons:

- There is some doubt about the effectiveness of these powers because they have not been tested under circumstances identical to those the States would face in confrontation with Federal powers.
- Neither State wants to block development of energy sources that may exist in the Baltimore Canyon Trough, particularly if it means fighting rearguard actions on technical points.⁴⁵
- Some State and local officials fear that their concerns would be overwhelmed by the combined forces of the Federal Government and the energy industry joining in the search for new sources of energy. In August 1975, Thomas O'Neill, former assistant commissioner of Environmental Protection for New Jersey, said: "There is a fear among coastal residents and officials that they're not going

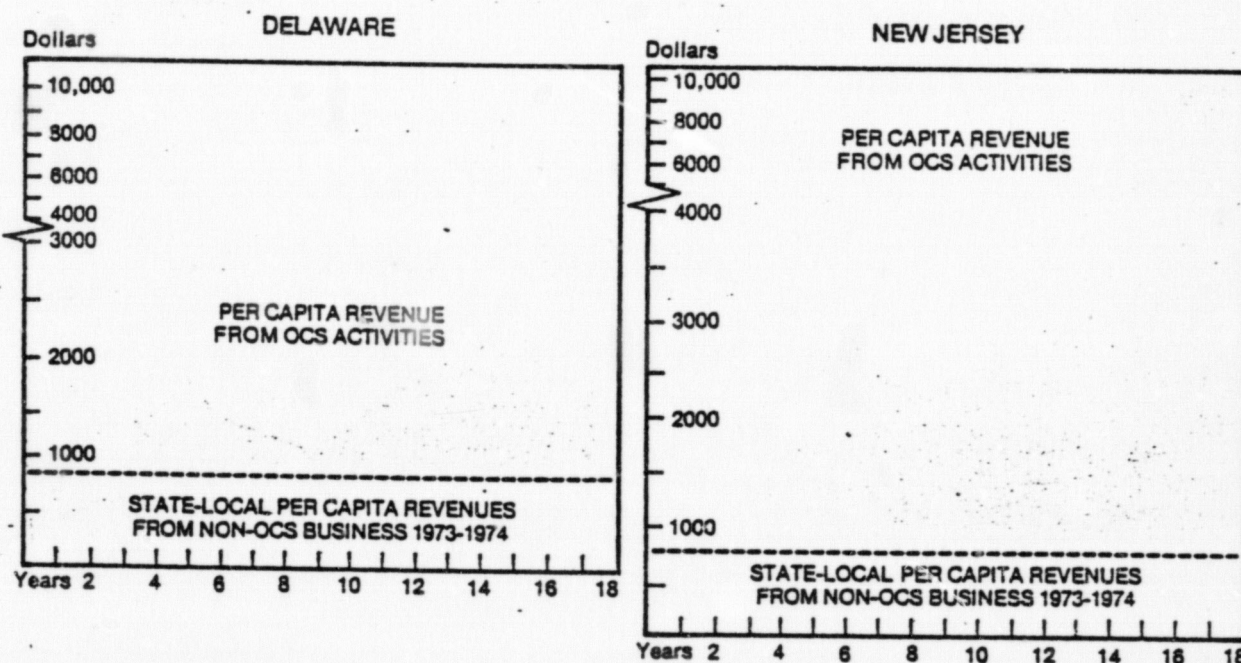
to have any control. They see a combination of big Government and big oil coming down on them and you've got some poor commissioner in Wildwood, N.J., who feels like he's standing up there all alone against this juggernaut."

What State officials seemed to be seeking, as reflected in interviews with OTA researchers, is a new process that would require formal, effective channels for State participation that would satisfy State obligations to protect their coastlines and still assure adequate supplies of energy for State residents and the Nation as a whole.

Transportation and Storage and Their Impacts

The next phase in development of oil and gas off the coast of New Jersey and Delaware would be construction of a network to move oil and gas from platforms to storage tanks

Figure IV-21. State-local tax revenue per OCS employee and their families compared to revenue from non-OCS workers and their families



Source: Office of Technology Assessment.

and processing plants and from there to refineries and into the distribution system.

It is technically possible to lay pipelines to shore and build storage tanks on a schedule that would have them in place when commercial quantities of oil and natural gas begin flowing from the Baltimore Canyon Trough area. OTA has assumed for this description that pipelines and tank farms would be built. It is possible, however, that pipelines would not be built if:

- oil or natural gas were found in quantities too small to justify the approximately \$1 million-per-mile cost of pipelines;
- oil companies decided that for market reasons they would refine Mid-Atlantic crude in some other location;
- oil companies decided that regulation of pipelines or refineries in either State would be too stringent to warrant pumping crude ashore in New Jersey or Delaware.

In any of these cases, crude oil could be pumped from platforms into offshore storage tanks and carried to refinery sites by tanker.

PIPELINES

If pipelines were laid, the work would be done by 175-man crews working on 300-foot "lay barges" which can assemble and drop to the ocean floor 1 mile of pipeline per day. The process involves welding 40-foot sections of steel pipe, coating them with asphalt paste or epoxy resin, bathing them in concrete to make them heavy enough to stay in place on the ocean floor, and trailing the assembled pipe over the side or stern. Smaller barges are used in laying a "jet-sled" over the ocean floor. The lay-barges and pump water through nozzles on the sled to dig a trench into which the pipeline settles.

The environmental impact statement for the Mid-Atlantic lease sale states that the follow-

ing lease stipulation will be applied: "Whenever technically and economically feasible, all pipelines . . . shall be buried to a depth suitable for adequate protection. . . ." It should be possible to specify burial depths where current and sand-shifting are high, where shipping lanes and anchoring grounds are located, where pipelines are traversing beaches, or where fish trawling or dredging takes place. The terms "suitable" and "adequate protection" could be defined more precisely.

Two kinds of pipelines would be laid on the ocean floor to transport oil to shore from offshore platforms. Gathering lines, usually 12 to 24 inches in diameter, connect individual wells to central platforms. Flow lines connect central platforms to shore. In the Baltimore Canyon Trough area flow lines probably would be more than 2 feet in diameter and extend 80 to 100 miles to shore.

Pipelines from offshore oil and gas production facilities might carry an initial installation cost in range of \$100 million⁴⁶ for a 24- to 36-inch pipeline between New Jersey or Delaware and an offshore oil field.

Given the size of the investment, it is in the best interests of industry that pipelines be coated with corrosion protection coatings and properly weighted with concrete where necessary, be installed with care from pipeline barges, be adequately welded and inspected, be buried throughout most of the distance offshore as well as onshore, and be adequately tested prior to use.

PIPELINE REGULATIONS

Pipeline networks, however, have not been subject to stringent regulatory standards in the United States in the past and pipeline failures, with resulting oil discharges, have occurred in the Gulf of Mexico as well as other offshore development regions. According to the Coast Guard Pollution Incident Reporting System data on oil spills in 1974, a major source of discharge was from pipelines.

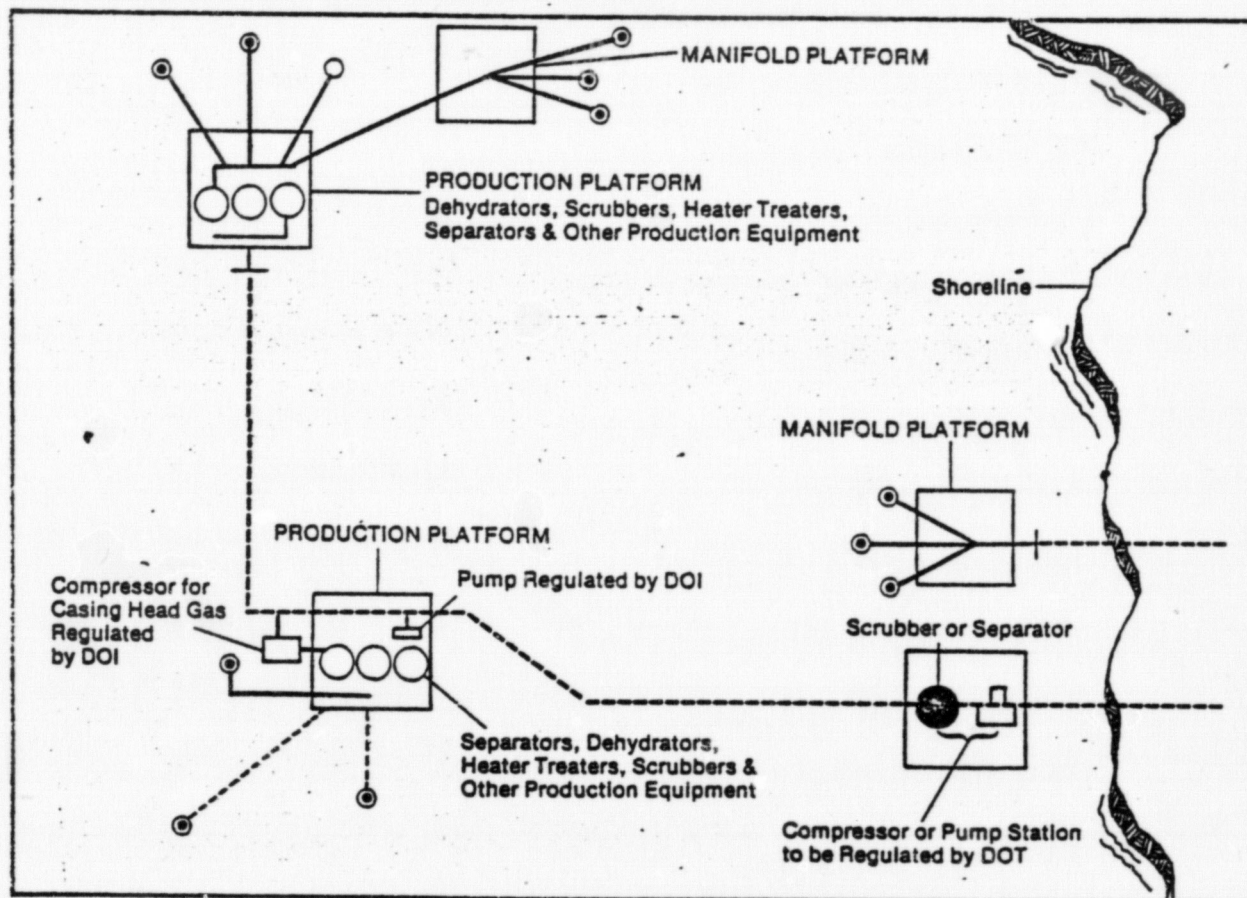
oil to refineries. Natural gas would be piped ashore in separate pipelines to gas processing plants that probably would be located near tank farms.

The oil industry rule of thumb for such tank farms is that they would be able to hold 10 days production of oil or gas. At the median estimate of Baltimore Canyon Trough resources, this would translate to five storage tanks on about 50 acres of land which could be located close to shore or well inland. For the high recovery estimate, 75 acres would be required.

TANKERING

It is feasible and sometimes economical to transport oil produced at offshore fields directly to refineries by tankers rather than by pipelines. The practicality of such a system depends on many variables such as distance from the offshore field to the refinery, amount of oil produced, cost of pipelines, status of field development, number of wells and platforms producing, cost of offshore storage and loading terminals, gas mixture, and pollution potential. In the Gulf of Mexico all production from offshore wells is transported by pipeline

Figure IV-23. Responsibility of Federal agencies for pipelines



● Wellhead; — Pipelines Regulated by the Department of the Interior (DOI);
 --- Pipelines Regulated by the Department of Transportation (DOT)

Source: DOI/DOT Memorandum of Understanding.

to refineries along the coast and inland. A major reason for this is that offshore production has been a gradual extension of producing areas on the coast and many wells are spread over wide areas in relatively shallow water. In some other major offshore producing areas very large fields were discovered which justified major pipelines. In other special cases, such as some North Sea fields, it was determined that offshore storage and tankering would be the best method of transporting oil ashore at least for some initial period of field development.

In the case of offshore New Jersey and Delaware, the potential fields are a substantial distance seaward (more than 80 miles) and pipelines may not always be economically justified, especially during initial development stages. It would be feasible to start producing into a storage tank and using tankers to ship the oil ashore. Of course, if major gas discoveries are made a pipeline would be required.

There are some advantages to tankering nominal quantities of oil when compared to the disruption that pipeline construction may cause. It should be noted, however, that oil pollution from tankers may not be as easily controlled as that from pipelines.

Oil Spills

In all stages of OCS development, oil spills are a major concern and pose the possibility of major impacts.

RISK ASSESSMENT

The possibility of oil spills is usually described in terms of risk probability. An OTA oil spill risk assessment indicates that there probably would be at least one major oil spill during development of the Baltimore Canyon Trough.

OTA projects that it is unlikely that there would be more than two spills of more than 24,000 barrels of crude oil each during the 30-

year life of the Baltimore Canyon Trough field. The projection of oil spill risk assumes the high recovery estimate of the USGS of 4.6 billion barrels.⁵⁰ For a median recovery estimate of 1.8 billion barrels, oil spill risk figures are roughly cut in half. (Only high and median recovery estimates were used in the risk assessment.)

This risk assessment concludes that the odds of an oil slick, even from a major spill at a platform 50 miles offshore, reaching the New Jersey or Delaware shore would be one-in-ten after the spill had occurred. If oil slicks did reach Mid-Atlantic beaches, however, they could hit any point along the coastline. Vague and general as these conclusions are, they represent the outer limits of judgments that can be made in view of such variables as wind force and direction, wave action, ocean currents, and size and location of a spill.⁵¹

This estimate of the range of probable oil spills as a result of Baltimore Canyon Trough development activities has been made based on statistics from offshore oil operations over the past 10 years, principally in the Gulf of Mexico. The greatest volume of oil has come from a small number of major spills. None of these offshore spills to date has been contained and cleaned up on site. OTA's estimate of a probable range of large oil spills, given OCS development follows the high recovery scenario, is from 5,000 to 860,000 barrels resulting from 1 to 40 spill incidents, with the most likely amount being 140,000 barrels and 18 spill incidents.⁵²

Should a major oil spill occur during Mid-Atlantic OCS operations it is doubtful that the spill would be cleaned up. Depending on the season, the size of spill, and prevailing conditions, the shoreline could be severely impacted. An independent study conducted for OTA by the Coast Guard, indicated that during a stagnant summer high pressure system, the probability of an oil spill from OCS sites reaching the shore is very high.⁵³ On the

Figure IV-27. Oil Spills in U.S. waters ranked by operation, calendar year 1974

Operation	Volume in Gallons	% of Total
1. Vehicle, Pipeline Transport	5,959,403	38.9
2. Vessel Underway	2,554,443	16.7
3. Vessel Facility Oil Transfer Operation	2,308,101	15.1
4. Unknown Operation	2,265,801	14.8
5. Natural Resources Exploration/Production	989,369	6.5
6. Vessel Mooring, Anchoring	385,487	2.3
7. Industrial Operations	290,643	1.9
8. Other Facility Operation	275,583	1.8
9. Vessel, Facility Fueling	113,037	0.8
10. Other Vessel Operation	47,104	0.3
11. Vessel Maintenance	36,658	0.3
12. Other Non Transportation Related Operations	34,130	0.2

Source: U.S. Coast Guard, "Marine Environmental Protection Program Evaluation of Mission Performance," August 1975.

day. Since this projected throughput exceeds the most optimistic estimate of peak Baltimore Canyon Trough oil production of 650,000 barrels per day by more than 1.2 million barrels per day, OCS crude could be processed in these refineries without further expansion.

If the rate of growth of existing markets for products of existing refineries in the New Jersey and Delaware areas were the controlling factor in decisions about building new refineries, then the demand could be handled by expansion of refineries already in place in the region. Refineries in the area now have a capacity of 1.3 million barrels of crude oil per day which could be nearly doubled without need for additional land. It is not clear, however, that growth in existing markets would be the controlling factor. For example, an oil company that had no regional refinery capacity might discover a significant deposit

of OCS oil and choose to build a new refinery in the area to process it. Or, oil discovered in the Georges Bank area to the north could be tankered to the Mid-Atlantic refineries and lead to pressure for new construction.

If significant amounts of natural gas are found, the gas would be piped to processing plants where methane (the key ingredient of commercial natural gas) would be separated from ethane (which is used as a petrochemical feedstock) and other compounds. After treatment, natural gas would flow into gas distribution systems.

Gas processing plants would require about 100 acres of land each. For the high recovery estimate, seven plants and 700 acres would be required.

AIR QUALITY

The primary source of onshore air and water impacts (other than oil spills) associated with offshore oil and gas development would be new refinery capacity, if any refineries were built as a direct result of offshore discoveries. Analysis shows that the most important air quality impacts would result from hydrocarbon emissions while the most important water impacts would result from thermal pollution and from demands on regional water supplies.

Analysis of existing air quality in the study region indicates that environmental standards may be a significant constraint on either new or expanded refinery capacity. Under current regulations, these facilities are required to conform to the most stringent limits for each pollutant set by two basic types of standards imposed by Federal and State governments. Effluents emitted by each facility must meet certain quantitative standards with regard to pollutant content and, in addition, the ambient air quality must not be degraded below specific standards for the area by additional pollutant discharges.

Analysis indicates that in the study region

the refinery pollutants of primary concern are nonmethane hydrocarbons, which react with nitrogen oxides in the presence of sunlight to form photochemical oxidant, an irritating secondary pollutant. It is estimated that a 250,000-barrel-per-day refinery emits about 40 tons of hydrocarbons per day (or 14,600 tons per year), of which 80 percent or more can contribute to the production of oxidants.

The area of study is, for the most part, at or over the oxidant and nonmethane hydrocarbon air quality standards. With any additional hydrocarbons from a new petroleum refinery or additional expansion of existing refineries, the air quality situation most likely would get worse. Even without the added pollutants, the New Jersey, New York, Connecticut, and Metropolitan Philadelphia Air Quality Control Regions total hydrocarbon emissions exceed air quality standards. In the first area, a reduction from 1971 levels of 67 percent, or 287,000 tons per year, is required. Therefore, if there is an air quality constraint on possible new or expanded refineries in the area, it would involve hydrocarbon emissions from refineries and tank farms.

WATER QUALITY

Analysis suggests that the concentration of waterborne pollutants from a new 250,000-barrel-per-day refinery effluent are relatively small and probably would not detrimentally affect the water quality of a receiving stream. The primary potential problem involves thermal impacts. The Delaware Bay and Newark Bay areas are both very close to the maximum permissible thermal load. Refinery cooling water would have some impact on these areas but technological alternatives such as the use of cooling towers could alleviate some of these problems.

As to water availability within the study area, potential problems could exist. If the various water supply regions within New Jersey are looked at in isolation and if the water demand increases up to 2,500 million

gallons a day in northeastern New Jersey, a supply deficit could result. However, if the total region including the Hudson and Delaware Rivers is considered, the overall supply of water is more than adequate to meet projected demands. Ample potential supplies of water exist but control over the distribution system is fragmented and funds are not available to expand the system to take advantage of available supplies. Water from new sources would require the construction of transmission systems and water control facilities such as dams, may encounter considerable opposition.

Effects on Regional Energy Prices

Dramatic changes in regional energy prices are not expected as a result of OCS development. However, while no absolute price decreases are expected, the area receiving OCS oil and gas may have lower energy prices *relative* to some other regions which may pay premiums for higher transportation costs. Another factor would involve future policies on oil and gas price controls.⁶⁴

The expected effects of natural gas discoveries in the Baltimore Canyon Trough on regional natural gas prices are highly dependent on assumptions concerning deregulation. In the case of complete deregulation, sales of intrastate gas in the Gulf Coast area suggest that prices of OCS gas would tend to follow the price of oil on a dollar-per-million Btu's basis, regardless of production costs. In the case of continued regulation, any price effects would depend on possible pass-through of relative cost savings resulting from reduced transportation costs compared to gas from the Gulf Coast. However, since transportation costs are a relatively small share of the delivered price of gas in the northeast, the possibility of offsetting increases in production costs makes large cost savings (relative to Gulf Coast gas) and price decreases unlikely.

Increasing curtailments of natural gas mean that increased availability of this clean-burn-

Presently another nearshore application is pending in the Virgin Islands, and at least two other ports in State waters are in early planning stages elsewhere off the east coast. These applications and the construction and opera-

tion of the ports will be useful in determining whether closer coordination of Corps and Transportation procedures and regulations is needed.

STATUS OF NEW JERSEY AND DELAWARE PLANS

A deepwater port probably will not be built to serve the Mid-Atlantic States during the next 10 years.

The Arab oil embargo and the cloud it placed over the reliability of imports was a major factor in the oil industry's decision to postpone deepwater port development. But it is only one of several factors, including State policies to discourage new refineries, Federal air quality regulations, which have the same effect, and sharply inflated construction costs. Another major factor is the oil industry's decision, faced with growing opposition to refineries and encouraged by Federal tax policies and import quotas, to develop an alternate system for supplying Mid-Atlantic oil products from Caribbean and Gulf Coast refineries. Industry is not likely to abandon the system as long as its costs are relatively close to the costs of refining oil on the Atlantic coast.

Oil consumption in the United States dropped in 1974 and then leveled off in 1975 at 16.3 million barrels a day, principally because of the 1974-75 recession. Recent forecasts estimate that consumption will climb to 20 million barrels a day by 1985.¹⁶

As much as half of the projected 1985 supply may be imported because domestic oil production has continued to drop since 1970. Even with production on Alaska's North Slope, domestic output is not likely to return to its 1970 peak of 11.2 million barrels, at least in the near future.

Oil consumption in New York, New Jersey, Delaware, and Pennsylvania is expected to climb to 3.8 million barrels a day by 1985, an increase of 1.1 million barrels a day over the 1975 levels. During that time, total imports of crude oil to refineries supplied through New York Harbor and the Delaware Bay may increase from 1975 levels of 1.2 million barrels a day to 2 million barrels a day only if there are expansions in refinery capacity.

Estimates in figure IV-38 were developed from a February 1976 forecast of demand by the Federal Energy Administration. Crude oil import figures assume that there will be some

Figure IV-38. 1976 projections of petroleum supply and demand

IN MILLIONS.OF BARRELS PER DAY			
A. UNITED STATES TOTAL			
	1975	1985	
Total Demand	16.3	20.0	
Imports	6.0	10.0	
B. MID-ATLANTIC REGION (New Jersey, Delaware, New York, and Pennsylvania)			
	1975	1980	1985
Total Demand	2.7	3.4	3.8
Total Imports	2.2	2.9	3.3
Crude Oil Imports*	1.2	1.5	2.0
*Likely to flow through any deepwater port			

Source: Federal Energy Administration, "National Energy Outlook," 1976 (for 1985 reference case) and with present crude oil to total import ratio extrapolated.

refinery expansion so that area refineries will continue to supply about 55 percent of the region's petroleum products.

Increases in excess of refinery capacity in the Mid-Atlantic will be in product while crude oil moves to the Gulf Coast for refining and redistribution coastwise by small tankers or overland by product pipeline.

About one-third of all oil products used in the Mid-Atlantic in 1974 were residual fuels which were transshipped from the Caribbean for generating electricity. Although the Federal Energy Administration forecasts a shift of about 12 percent of electric power generation from oil-fired to nuclear or coal-fired plants over the next 10 years, its projections still imply a continued heavy reliance on residuals.¹⁷

In recent years, State land use and environmental policies have discouraged the construction of new refineries in coastal areas of New Jersey and Delaware.

The Delaware Coastal Zone Act flatly prohibits construction of refineries or pipeline landings in the coastal area. Existing Federal and State air quality regulations make construction of new refineries along the Delaware River and Bay unlikely in the foreseeable future although existing refineries may be expanded without exceeding pollution standards.¹⁸

Since 1970, an Amerada-Hess refinery in the Mid-Atlantic region has been closed; plans to double the capacity of a Mobil Oil Co. refinery in New Jersey have been canceled; and construction has not begun on a Shell Oil Co. refinery, originally planned for a site in Delaware and then for a site in New Jersey.

Because a decision to build a deepwater port would logically follow—and not force—a decision to build new refineries, a port is likely to be postponed at least until the Mid-Atlantic refinery picture changes.

Inflation also has worked against construc-

tion of a deepwater port, pushing the costs of a port inside Delaware Bay from \$193 million to more than \$400 million. The estimated cost of dredging some 15-million to 20-million cubic yards of bay bottom for a channel to the port that would handle 250,000-dwt tankers has increased in that time to more than \$40 million.¹⁹

In 1971, the Delaware Bay Transportation Co. estimated that oil could be transferred through its proposed port for 12 cents a barrel. At the inflated construction costs, the price in 1975 would be closer to 25 cents and possibly as much as 39 cents if Delaware were to tax incoming oil at 1 percent of its market value.²⁰

At those prices, most of the cost advantage of using supertankers would be lost and the port would provide an economic advantage only for tankers on the longest trips between the Persian Gulf and the Mid-Atlantic region. Even on that route, savings would be significant only with tankers of 250,000 dwt or more. There would be little or no cost advantage over lightering for tankers between 100,000 dwt and 200,000 dwt. Deepwater port transfer costs actually could be higher than lightering for small tankers or for large tankers on shorter runs from Africa or South America.

The increased transfer costs would eliminate much of the economic advantage which was perceived by New Jersey and Delaware residents to be a prime argument in favor of a deepwater port.

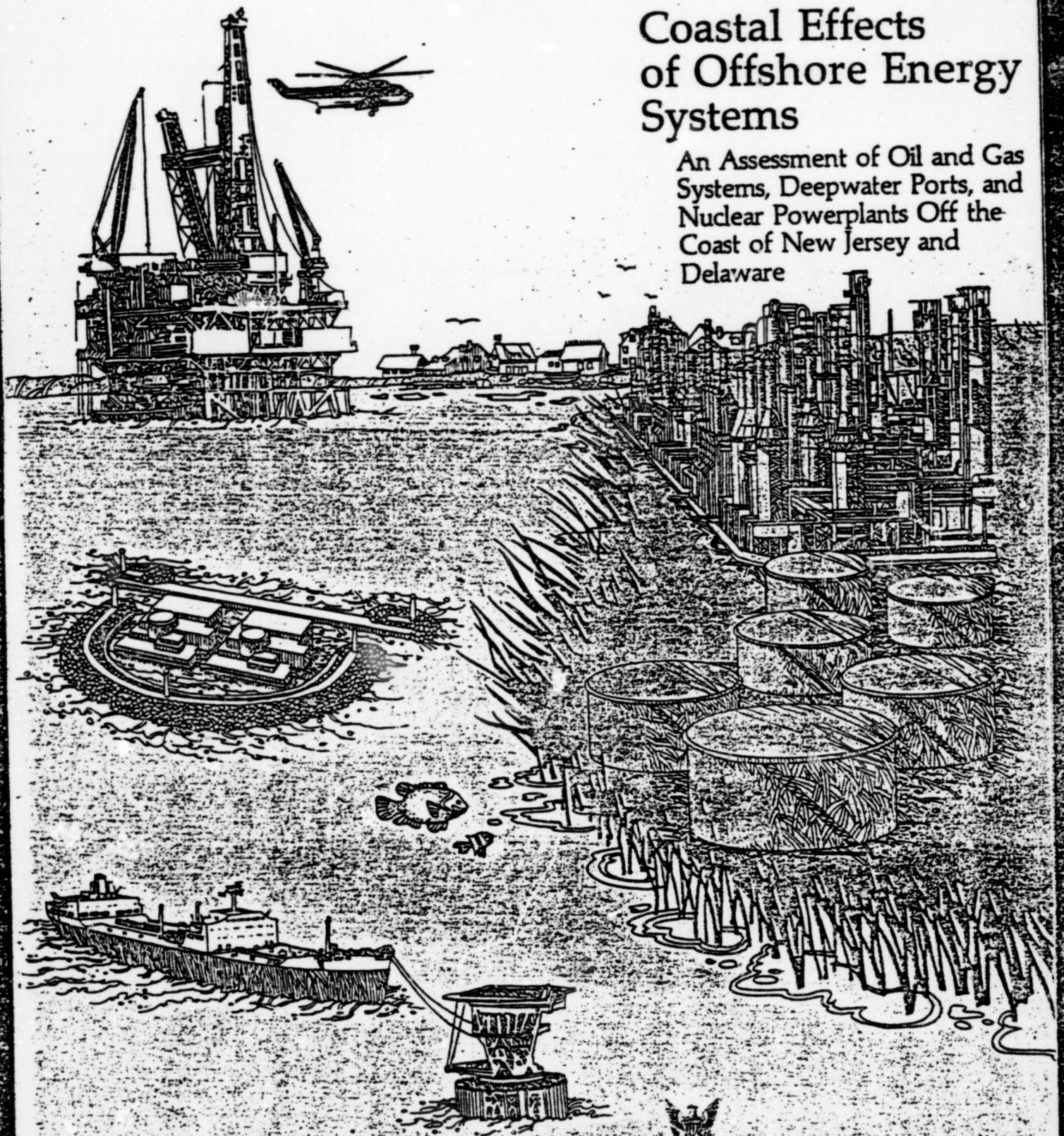
Citizens responding to OTA questionnaires said they believed the port would reduce the cost of petroleum products by providing a more efficient transportation system.

Not all oil industry officials agree with the cost figures cited in this study, which were generated by the PenJerDel Corp., an affiliate of the Philadelphia Chamber of Commerce, in a 1975 study. Industry officials do agree,

Volume II: Working Papers₃₅₈₃

Coastal Effects of Offshore Energy Systems

An Assessment of Oil and Gas
Systems, Deepwater Ports, and
Nuclear Powerplants Off the
Coast of New Jersey and
Delaware



United States Congress
Office of Technology Assessment
November 1976

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Working Paper #5

Regional Energy Supply
and Demand Considerations

Prepared for OTA
by Energy and Environmental Analysis, Inc.
Arlington, Va.

April 1976

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TABLE OF CONTENTS

	<u>Page</u>
SUMMARY	i
I. INTRODUCTION	1
II. ENERGY SUPPLY, DEMAND, AND TRANSPORTATION . .	2
A. Current Energy Consumption Patterns . . .	2
B. Pattern of Energy Supply	5
C. Oil and Gas Transportation	7
III. REGIONAL REFINERY OPERATIONS	25
A. Profile of Present Operations	25
B. Trends and Economic Considerations . . .	30
C. Refinery Siting Decisions	33
IV. ENERGY DEMAND PROJECTIONS	43
A. Published Projections and General Considerations	43
B. Projections of Energy in the Northeast .	46
V. OCS OIL AND GAS	55
A. Introduction	55
B. OCS Oil and Gas and the Regional Energy Pattern	55
C. The Effect of Energy Demand Projections on Transportation and Refining Strategies	59
D. Transporting and Refining OCS Oil	61
APPENDIX A	A-1
APPENDIX B	B-1

B. Pattern of Energy Supply

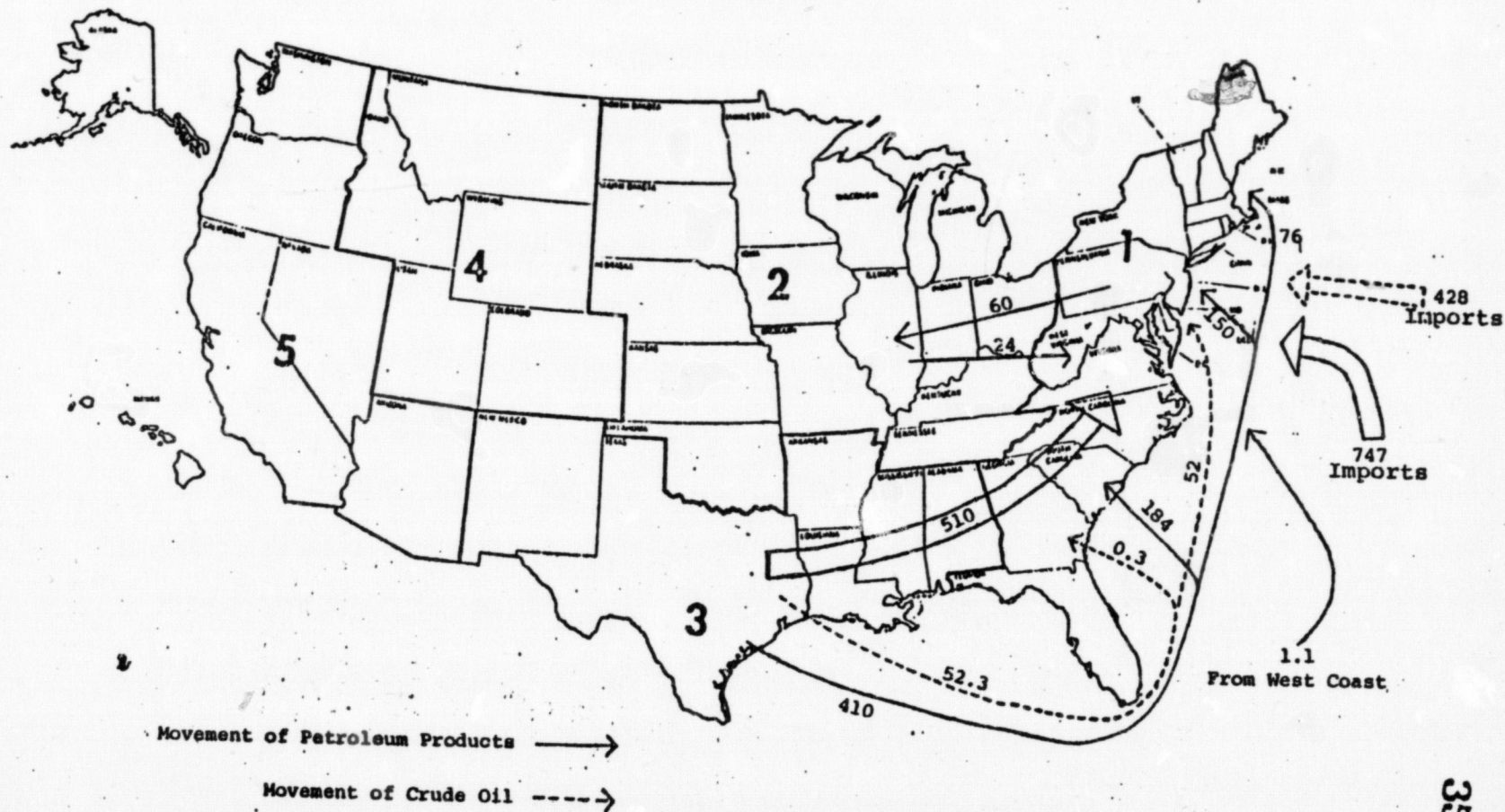
As shown by the map in Figure 2-1 the East Coast (PAD 1) is supplied by two major sources. PAD 3 is a major source of refined petroleum products. Movements of petroleum products to PAD 1 are by pipeline, tanker, and barge. Pipeline movements of product are 65 percent gasoline and jet fuel and 30 percent distillate. The products moved by water to both New England and the Central Atlantic are about one-third gasoline. Only about 10-15 percent of these water movements are residual fuel oil, and since residual is very difficult to pipe, no pipeline movements of residual are made from PAD 3 to PAD 1. Foreign sources supply nearly 40 percent of all the petroleum products which are refined outside of PAD 1 and shipped there for consumption. These imports are predominantly residual fuel oil, (71 percent of refined imports) much of which is burned by electric utilities.

The 31 refineries of PAD 1 are supplied with primarily imported crude oil. Relative to the imports of crude (428 million barrels in 1974), production of crude within PAD 1 is limited (44 million barrels). Over eighty percent of this production is in Florida. Central Atlantic refineries are also supplied by crude oil brought by tanker and barge^{1/} from PAD 3 (52 million barrels), although this quantity combined with crude oil production in PAD 1 is less than one-fourth the quantity of crude imported to PAD 1. Imports in 1974 originated in a large number of countries with Nigeria, Iran, Venezuela, Saudi Arabia, and Canada being the primary sources.

New England and the Middle Atlantic states rely almost entirely on the states in the West South Central region for natural gas.

^{1/} There are no major crude pipelines which can bring crude into area from PAD 3.

Figure 2-1
Supply of Crude Oil
and Petroleum Products to
the East Coast, 1974
(millions of barrels)



Source: Based on Bureau of Mines data: Mineral Industry Surveys,
"Petroleum Statement", December, 1974.

3587

Over 80 percent of the natural gas produced in the U. S. originates in Texas, Louisiana, and Oklahoma. There is no production in New England, and only limited production in New York and Pennsylvania. Production in these two states (87.6 billion cubic feet in 1974) represents less than 0.5 percent of national production, and this quantity is less than 5 percent of the natural gas consumed in New England and the Middle Atlantic states.

C. Oil and Gas Transportation

1. Petroleum

a. Trends in the Petroleum Transportation System

Table II-3 shows the trend in the last ten years in the mode of transport of crude oil and petroleum products. The dependence of petroleum transport on pipelines is apparent. About 70 percent of all crude oil transported to refineries is carried in pipelines. The major Northeastern refineries are, of course, not typical in both receiving their crude by tanker and barge, and receiving 80 percent of their oil from foreign sources (versus 20 percent for the nation as a whole).

The mix of transport modes for oil (both crude and refined products) has remained relatively stable over the past ten years. The major shift has been one whereby pipelines have slowly increased their share of total movements at the expense of water carriers. Both modes have increased their volumes moved, in absolute terms. Motor carriers, the second most important mode, have the same share in 1973 as they had in 1965.

Figures 2-2 and 2-3 show the basic outlines of the crude oil and petroleum product, pipeline systems serving the Northeast. The complexity of the systems is not shown in the maps, which give only the principal corridors for the major pipelines.

Table II-3

REFINERY RECEIPTS OF CRUDE OIL BY METHOD OF TRANSPORTATION
(Daily Averages in Thousands of 42 Gallon Barrels)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Domestic crude oil:										
Intrastate:										
Pipe lines	3,855	4,016	4,332	4,571	4,699	4,741	4,664	5,006	4,923	4,337
Tankers and barges ..	403	417	354	374	378	406	441	425	408	357
Tank cars and trucks ..	95	104	109	112	115	102	101	130	125	142
Total	4,353	4,537	4,795	5,057	5,192	5,249	5,206	5,561	5,456	5,136
Interstate:										
Pipe lines	2,618	2,729	2,728	2,797	2,890	3,039	3,102	3,092	3,036	2,908
Tankers and barges ..	813	953	1,174	1,171	1,120	1,265	1,178	816	684	580
Tank cars and trucks ..	10	12	16	19	16	15	15	15	34	60
Total	3,441	3,694	3,918	3,987	4,026	4,319	4,295	3,923	3,754	3,548
Foreign crude oil:										
Pipe lines ¹	294	345	401	462	546	649	713	868	1,120	1,015
Tankers and barges ..	944	879	727	828	862	669	966	1,340	2,124	2,455
Total	1,238	1,224	1,128	1,290	1,408	1,318	1,679	2,208	3,244	3,470
Total Receipts ¹	9,032	9,455	9,841	10,334	10,626	10,886	11,180	11,692	12,454	12,154

¹ Excludes crude oil imported for direct fuel use by pipelines.

Source: Bureau of Mines, *Petroleum Statement*, January and Annual issues.

TOTAL CRUDE PETROLEUM AND PETROLEUM PRODUCTS CARRIED IN
DOMESTIC TRANSPORTATION AND PER CENT OF TOTAL CARRIED
BY EACH MODE OF TRANSPORTATION
(Daily Averages in Thousands of Short Tons)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974 ^a
Pipe lines										
Tons carried	1,610	1,725	1,861	1,985	2,081	2,165	2,210	2,394	2,499	
Per cent of total ..	44.4	44.8	45.6	46.4	46.8	46.9	46.9	47.5	47.5	
Water carriers										
Tons carried	887	912	958	986	1,038	1,103	1,142	1,166	1,154	
Per cent of total ..	24.5	23.7	23.5	23.1	23.4	23.9	24.2	23.1	21.9	
Motor carriers ¹										
Tons carried	1,056	1,142	1,188	1,229	1,255	1,277	1,290	1,403	1,534	
Per cent of total ..	29.1	29.7	29.1	28.8	28.2	27.6	27.4	27.9	29.1	
Railroads										
Tons carried	71	71	71	72	72	73	70	74	81	
Per cent of total ..	2.0	1.8	1.8	1.7	1.6	1.6	1.5	1.5	1.5	
Total tons carried	3,624	3,850	4,078	4,272	4,446	4,618	4,712	5,037	5,268	

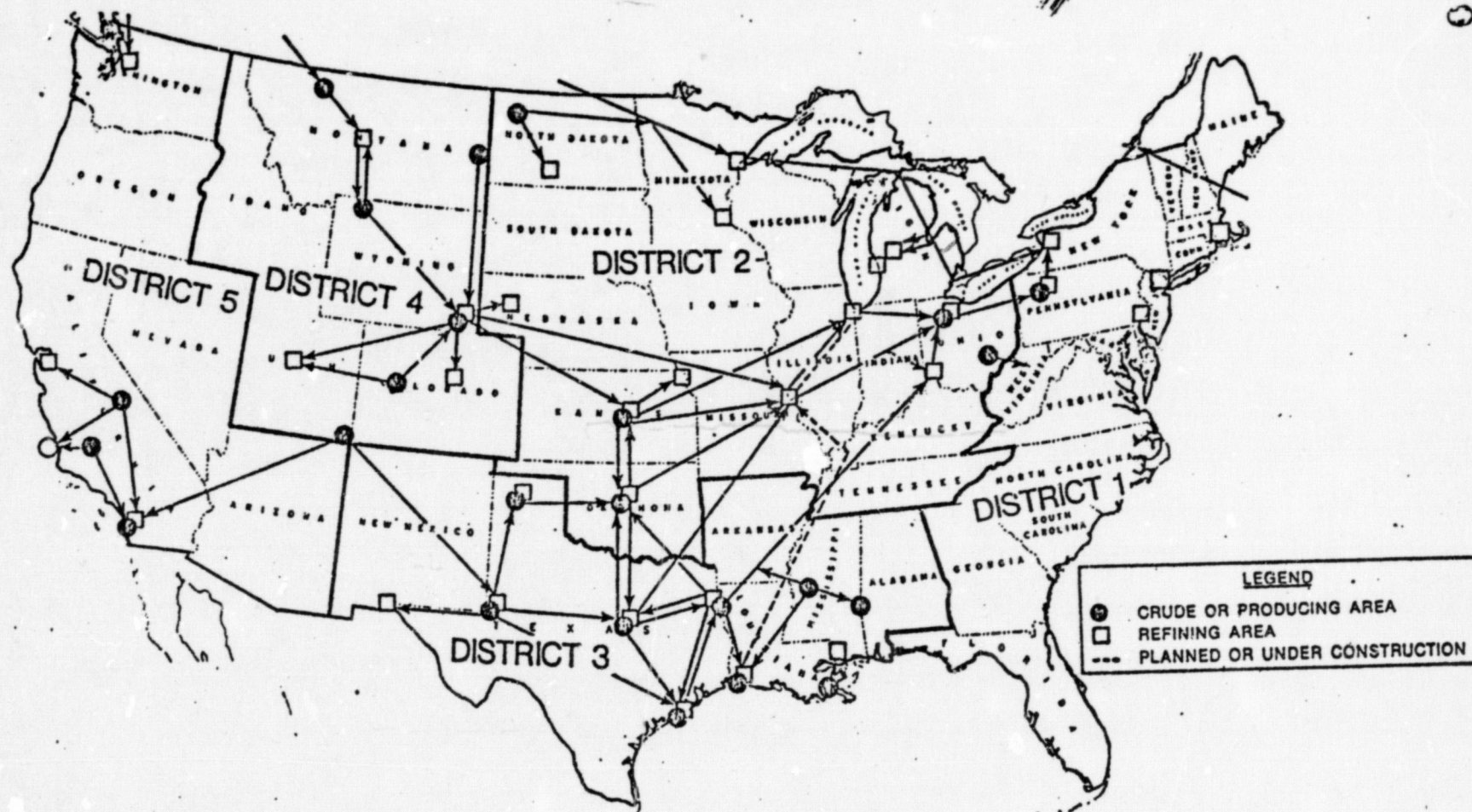
^a Not available.

¹ Estimated.

Source: Association of Oil Pipe Lines, *"Shifts in Petroleum Transportation."*

Source: Annual Statistical Review, API, 1965-1974.

Figure 2-2
Major Crude Oil Pipelines



Source: National Petroleum Council in Project Independence Report,
Federal Energy Administration, November, 1974.



3591

It is apparent from Figure 2-2 that the major Northeastern refinery areas depend on water, and not pipeline for their crude oil.

Two points should be noted concerning these networks. First, the pipelines do not contain mixtures of products, and hence certain lines are distillate lines, others carry gasoline, LPG, or other pipeable products. Second, certain products are not generally pipeable, and hence are not carried on this network. Examples include residual fuel oil, asphalt, lubricants, and wax.

b. The Economics of Petroleum Transport

Any brief discussion will, of course, not be able to completely capture the complexity of the economics of transporting all of the various petroleum products (from gasoline to lubricating grease) by all of the possible modes (from huge tanker to small truck). This discussion will, therefore, focus on the major products and major modes of transport. Specialty products such as wax or lubricating oil, with their high value per unit of weight, are obviously special cases. They cannot be piped, and the truck or rail transportation which would be uneconomical for crude oil or other lower value products may be the appropriate transportation mode for these products.

c. Petroleum Transport Costs

As an input to the previously cited DOT model, cost curves for various modes of transport were developed. The curves represent costs as of 1972, and while there may have been some cost increases since then, these are felt to be minor and the shapes of the curves will not have changed dramatically.

The right-of-way, labor, and construction costs which are an element of the cost curves in Figure 2-6 will differ from region to region. The DOT model, in incorporating these curves, developed regional multipliers. Lack of data, as well as a desire for simplicity of modelling, led to development of only two multipliers: 1.30 for the North Atlantic states ^{1/} and .94 for the other states in the Mid-Atlantic area ^{2/}. In the actual application of the curve shown in Figure 2-6, equations were derived and costs were calculated based on these approximations for the curve. These are shown in Appendix 1, and will be used later in lieu of taking cost estimates directly from the curve in Figure 2-6 itself.

g. Comparison of Costs of Petroleum Transport Modes

The extent to which different modes of transport are or are not competitive with each other at various distances and volumes can be shown by combining the various curves previously shown. For a comparison of barge costs (which are a function of distance) with pipeline costs, (which are a function of volume) costs can be compared at a series of distance-volume combinations. This is done in the iso-cost curve shown in Figure 2-7. The points on the curve itself represent equal costs between the two modes, with the low volume-long distance combinations to the left of the curve giving a cost advantage per barrel-mile to barges. Pipelines have a cost advantage at high volumes. At a volume greater than about 160,000 barrels/day, barges cannot compete with pipelines at any distance. At low volumes and short distances, pipelines costs are also lower than barge costs.

1/ Connecticut, New York, Pennsylvania, Rhode Island, Vermont, New Hampshire, Massachusetts, and Maine.

2/ In this case, including New Jersey, Maryland, and Delaware.

An iso-cost curve is also derived for pipelines and tankers in Figure 2-8. The pipeline costs are expected to be less than tanker costs at high volumes, with increasing volumes giving an advantage to pipelines over a larger range of distances. At long distances and low volumes, tanker costs are lower per barrel-mile. The particular curve derived is for a 26,000 dwt tanker, and the lower cost per ton-mile of a 60,000 dwt tanker would result in a shift of the iso-cost curve to the left.

h. Conclusions -- Petroleum Transport

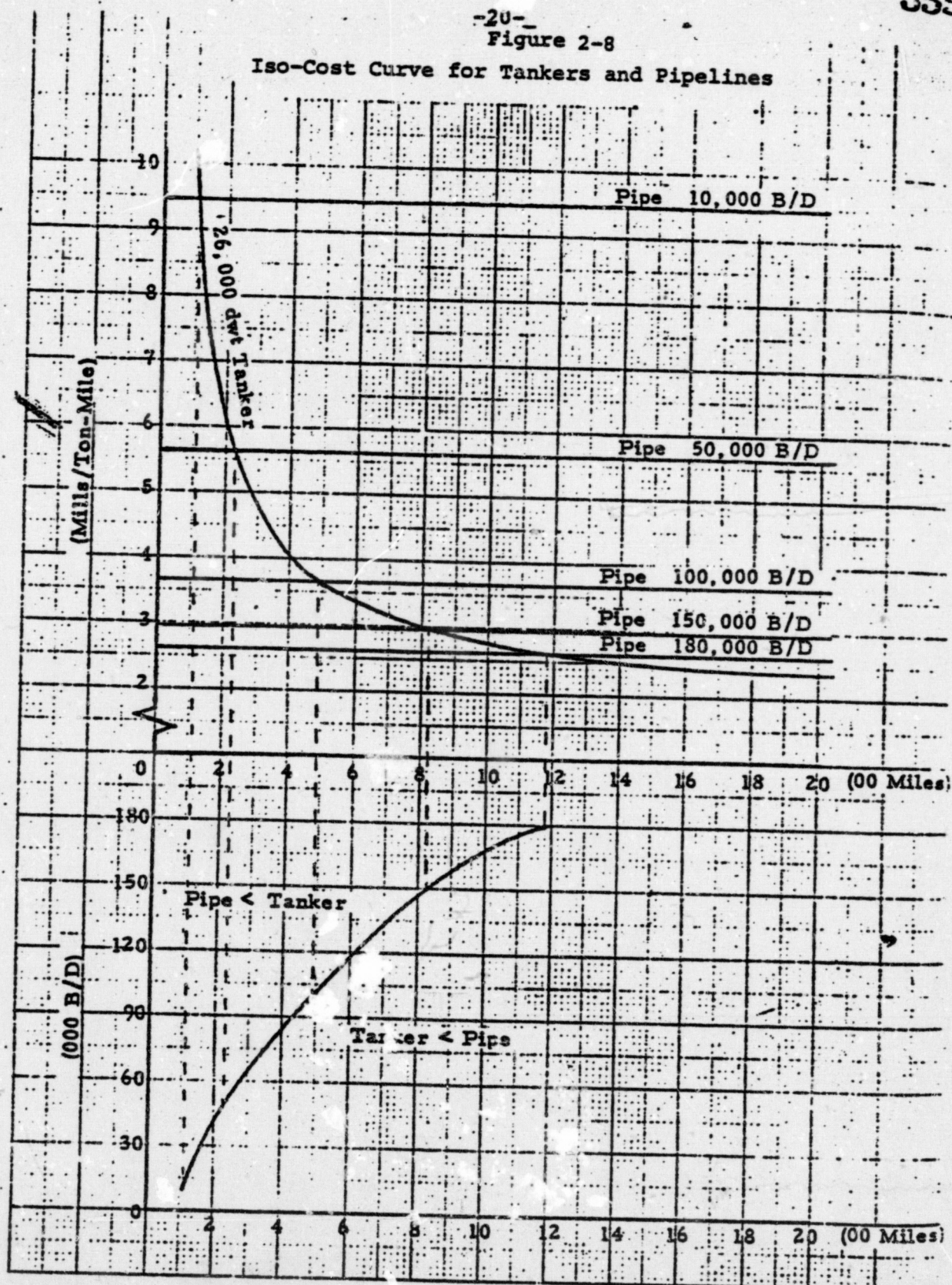
These cost curves show that, in theory, there is considerable flexibility to move petroleum by a number of different modes. Two limitations to this analysis should be noted at this point. First, the costs from which these curves are derived are industry-wide averages. A full understanding of the transportation options open to a particular company would require detailed analysis of the costs being faced by that company. These may diverge significantly from the industry average, but data is not available to analyze transportation costs at the company level.

A second limitation to any analysis using present cost curves is that these are a static view of current cost relationships, and decisions will in fact be based on projected costs. A decision to utilize a certain mode of transport will be based on what the expected costs of the mode will be over time. The advantage which a long-distance pipeline might currently have over a tanker in a particular application can clearly change over time. For example, rising right-of-way costs and pipeline construction costs could be expected to drive total pipeline transportation costs up more quickly than tanker costs, thereby changing the cost relationship between the alternative modes.

-20-

Figure 2-8

Iso-Cost Curve for Tankers and Pipelines



Source: Economic Aspects of Delivery and Deep-Water Port Location in the United States, U.S. Dept. of Transportation, May, 1974.

Figure 4-1

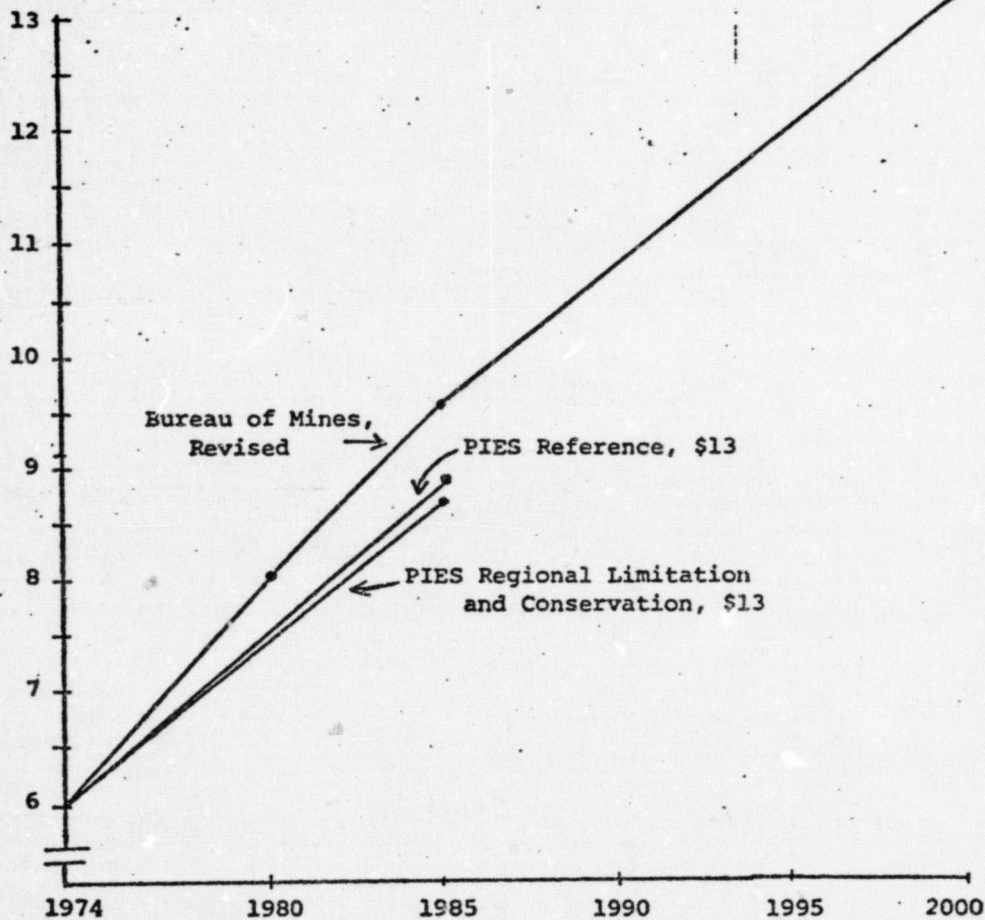
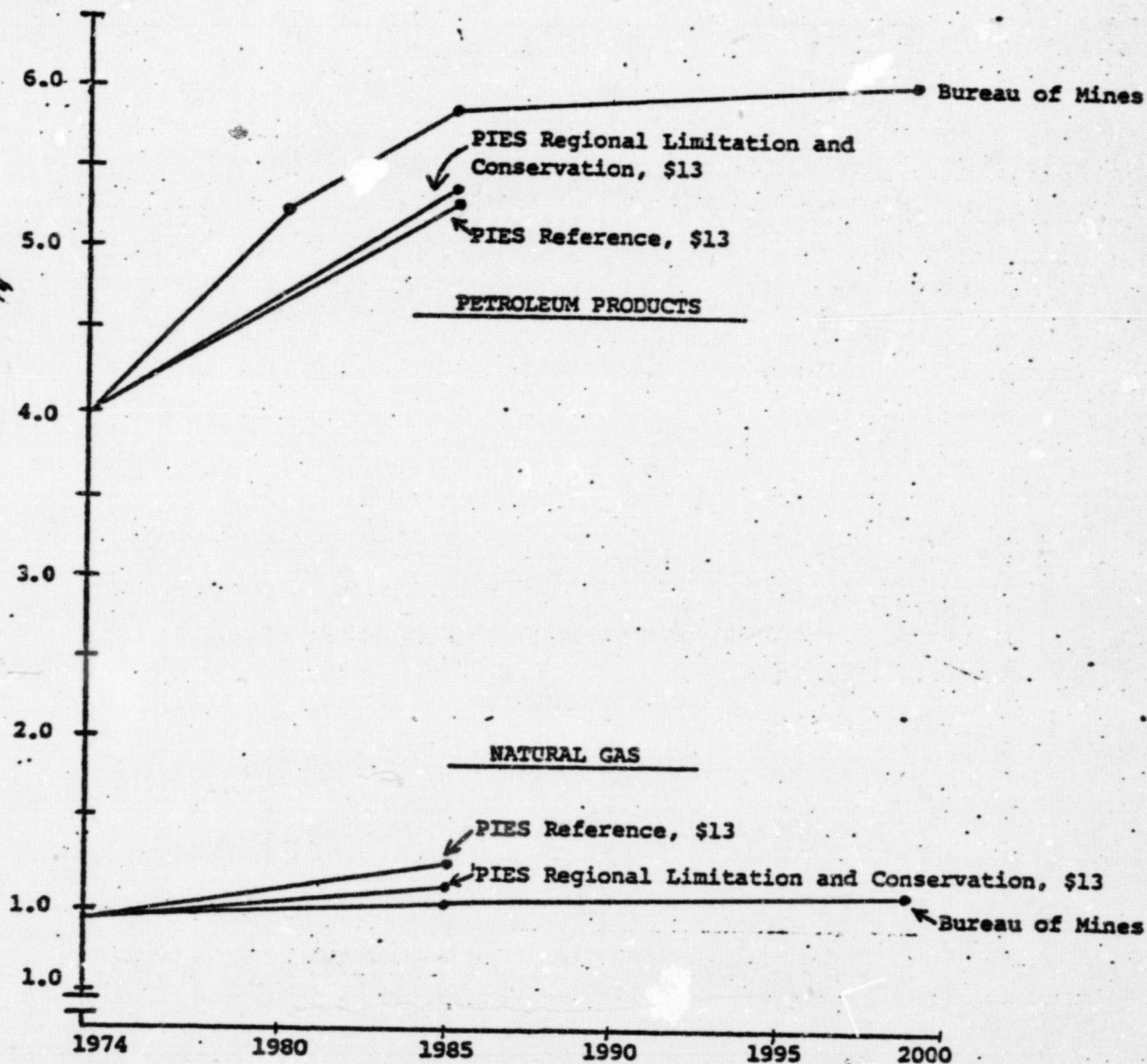
PUBLISHED PROJECTIONS OF DEMAND
FOR TOTAL ENERGY IN THE NORTHEASTMillions of Barrels
of Oil Per Day
Equivalent

Figure 4-2

PUBLISHED PROJECTIONS OF DEMAND FOR NATURAL GAS
AND PETROLEUM PRODUCTS IN THE NORTHEASTMillions of Barrels
of Oil Per Day
Equivalent

SECTION V

OCS OIL AND GAS

A. Introduction

The discussion to this point has focused on the present supply and demand pattern in the Northeast, regional refinery operations, the economics of transportation and refinery siting, and projected energy consumption in the region. A consideration of all of these factors is necessary to understand the probable disposition of OCS oil and gas from the Baltimore Canyon. Among questions to be answered concerning a given OCS oil and gas find are the following:

- Where will the OCS crude oil be refined?
- How will the oil and gas be transported and what flexibility exists in transportation choices?
- Will additions to refining capacity be necessary, and if so, what form will additions to refining capacity take?
- How will choices concerning the disposition of the oil and gas be affected by expectations of growth in energy demand and/or expected shifts in the mix of energy sources?
- How would the various sizes of gas and oil discoveries affect energy supply and demand in the region?

B. OCS Oil and Gas and the Regional Energy Pattern

The size of the OCS oil and gas discovery can be placed somewhat in perspective by Figure 5-1 which shows the size of the expected find under two scenarios, and by Table V-1 which compares expected production to the Bureau of Mines energy projection discussed

in the last section. As can be seen from the table, the OCS oil and gas, even under the more likely medium recovery scenario, will only supply about 16 percent of the region's demand for petroleum products and about 36 percent of demand for natural gas. Area refineries will still be dependent upon external sources for their crude oil inputs, and the region as a whole will also be dependent upon external sources for natural gas.

Relative to present refining capacity in the region (1.5 million BPD with about 1.3 million BPD in the two major areas), the expected peak daily production under the most likely peak production level of 300,000 BPD would only be 20 to 23 percent of current daily crude throughput. While this production is based on the median reserve estimate, the high reserve estimate and corresponding daily production of 600,000 BPD would provide 40 to 45 percent of the current daily crude throughput in the regional refineries.

In the case of completely stagnant demand for petroleum products, the analysis of the disposition of OCS oil and gas would be relatively simply: OCS oil would be substituted for the more expensive foreign crude^{1/} which is now the source of most of the crude for area refineries. In such a case, no construction of refining capacity would be prompted by OCS oil, and other than reduced shipments of foreign crude, no major changes in the transportation system would result. However, as was shown in the projections developed in the previous section, demand for petroleum products is not expected to stagnate at present levels. This growth in demand means that refinery expansion is likely in the absence of OCS oil. The complexity of the refining alternatives is obvious, but it is somewhat independent of the OCS oil itself.

1/ It will be assumed, for simplicity, that the OPEC cartel remains relatively stable. Instability of some type in the cartel is, of course, a very real possibility. In the extreme case where the cartel broke and imported oil prices fell dramatically without protection of domestic prices, cheap foreign crude could replace domestic crude (including OCS).

OCS natural gas will presumably be fed into the existing transportation network^{1/} and will serve to replace natural gas currently being transported from the Gulf Coast. The gas "freed up" by such a substitution can presumably be transported to other areas of the country. While gas brought into the region may somewhat change demand patterns in the region, this is not expected to be a major factor. Widespread conversion to natural gas as a fuel for utilities and industry would not be expected, for example. Deregulation of natural gas has been assumed in the previously developed projections. Such deregulation would mean that, unlike the current situation, the gas would enter a market where its price would rise to a market-clearing level which reflected its true value. Presumably, users and potential users would bid for its use, and OCS gas would enter a market which is considerably more national in scope than the present dual market which includes a large unregulated segment in the Gulf Coast states.

C. The Effect of Energy Demand Projections on Transportation and Refining Strategies

The general discussion of national and regional energy projections established the number of variables which must be considered when projecting energy consumption. Those who will decide where OCS oil will be transported, refined, and marketed must consider both demand in the Northeast as well as demand in other regions. While possible transportation and refining options will be discussed more fully below, it is important at this point to note that, while OCS oil and gas will be divided among a number of companies, there are certain indivisibilities associated with refinery construction. The most likely peak production is 300,000 BPD and this will be divided

^{1/} Additions to capacity will undoubtedly be necessary through additional pipelines and/or compressors on existing pipelines. Lower deliveries and lower load factors on pipelines from the West South Central region due to lower demand could increase the cost of delivering gas in the existing network. Pipeline consolidation would be one way of averting this.

stronger in the South, for example, OCS oil may be refined in a location which allows easier transportation to those markets. In one sense, OCS oil from the Baltimore Canyon must be viewed with an almost national perspective.

D. Transporting and Refining OCS Oil

As previously stated, it is not expected that OCS oil in the quantities expected will, in and of itself, prompt construction of new grass roots refineries. OCS oil can be expected to simply replace the imported oil which is currently the source of most of the region's crude input, and for that reason it does not appear that OCS oil can even be expected to result in additions to capacity. In this sense, oil companies will be making refinery location decisions almost independent of whether or not OCS oil is found. Based primarily on how they view the strength of demand for petroleum products in the region, a decision will be made as to whether or not to add capacity for future regional demand and, if added, where to locate it.

Given that an oil company with both a share of OCS oil and a regional refinery projects increased regional demand and decides to meet it with increased capacity, there are several options for where to add the capacity. Although the mid-Atlantic refineries refineries are generally quite flexible as to the type of oil (in terms of physical characteristics) they can process, it may be that OCS oil is not compatible with a particular company's existing refinery. This introduces a number of options, one of which is to modify the existing regional refinery, and another being the possibility of shipping it to another refinery with different capabilities. The following three options should cover most of the possibilities for disposition of OCS oil:

- refine the oil in Gulf Coast refineries;

- refine it in the two major New Jersey-Pennsylvania refinery areas;
- refine the oil elsewhere on the East Coast.

Although the second option is felt to be the most likely, examination of all three options should cover the range of actions which could be prompted by OCS oil.

1. Texas Refining of OCS Oil

While it might seem obvious that the "large" expense of shipping crude to Texas and shipping product back to the Northeast would eliminate this option, the recent expansion of Exxon's Baytown, Texas refinery (by 250,000 BPD) suggests that the alternative should be examined. The expansion will be used to serve Northeastern markets, and was done in lieu of expanding Exxon's New Jersey refinery or building in the Northeast.

Unlike the case of Baltimore Canyon OCS oil, the Baytown expansion will refine imported crude. In the discussion of transportation costs, it was noted that the flatness of tanker cost curves at long distances implies that there would be little cost difference between transporting crude to Texas as opposed to New Jersey. Texas also had the advantage of experience in handling the type of crude which is to be refined in the expanded capacity, and perhaps most importantly, Exxon did not expect to face the degree of local opposition in an expansion at Baytown as opposed to the Northeast.

Table V-2 provides several sample calculations of the cost of transporting Baltimore Canyon crude to Texas and products from Texas to New Jersey. The range of costs shown by these calculations is between 32.7¢ and 53.7¢ per barrel.^{1/} Because these costs are based on the previously discussed cost curves, they are necessarily dependent

^{1/} One-way cost. Various combinations would be possible for two-way shipment.

Transpo

Crude p

Product

Tanker

Tanker

1/ Bas

2/ Int

Table V-2

SAMPLE TRANSPORTATION COST CALCULATIONS^{1/}

Transport Mode ^{1/}	Volume	Cost per Unit	Distance	Cost per Barrel
Crude pipeline	300,000 BPD	10.90¢/500 bbl/mile	1,500 miles	32.7¢
Product pipeline	300,000 BPD	13.63¢/500 bbl/mile	1,500 miles	40.8¢
Tanker (U.S.) ^{2/}	60,000 dwt	1.8 mills/ton-mile	1,750 miles	42.0¢
Tanker (U.S.) ^{2/}	35,000 dwt	2.3 mills/ton-mile	1,750 miles	53.7¢

1/ Based on cost/volume relationships shown in previously discussed DOT cost curves.

2/ Intercoastal U.S. flag carrier. Separate costs not developed for crude and product.

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upon size of tanker, size of pipeline, and volume. For example, considerably higher costs would be faced by attempting to ship low daily volumes to and from Texas by pipeline.

The cost penalty for the additional transportation required by Texas refining operation is 1-2¢ per gallon. Part of this cost penalty may be made up by the lower operating costs in Texas than in the mid-Atlantic. As Table V- showed, this is about a 30¢ per barrel difference for grass roots refineries given certain assumptions concerning regional differentials in construction and operating costs. Based on transportation and refinery operating costs alone, it seems unlikely that most companies would be willing to incur such a cost penalty (and potential competitive disadvantage) if it could be avoided by locating nearer both the source of crude and the market. Opposition to refinery construction based on environmental grounds could be a factor which, due to delays, would be translated by the company into a cents-per-barrel penalty associated with the mid-Atlantic location. Economies stemming from the location of numerous ancillary support industries in Texas as well as the location of a large petrochemical industry could also be seen as a benefit associated with a Texas location.

2. New Jersey-Pennsylvania Refining

In terms of minimizing product^{1/} transportation costs, and assuming that the producing companies have refineries in the area, there is an incentive to refine OCS crude in the existing refinery areas in the Northeast. Over 85 percent of the present refining capacity is in the Northeast and is located in the two major areas in the north and southwestern areas of New Jersey. These refineries are currently heavily dependent on imported oil, and the PIES model

1/ Assuming that the product is marketed in the mid-Atlantic. A New England location would result in somewhat lower product transportation costs for New England markets.

projects a continuation of this dependence on foreign crude.^{1/} OCS crude oil can, in such a case, substitute directly for foreign oil and the projected increase in demand for petroleum products in the region can be met through either increased capacity in the Northeast and/or greater inter-regional (or international) transfer of refined products.

3. Other East Coast Locations

OCS oil could be refined in other locations on the East Coast. Possible areas for expansion are not numerous, however,^{2/} and in all likelihood this option would involve a grass roots refinery. The considerations involved are similar to those for the Texas and New Jersey cases. OCS oil would not be expected to prompt construction of a new refinery by itself, although it may provide an element of supply at a cost reduction relative to the previous cost of crude.

Dependent on the exact location chosen, and whether or not the company is its own supplier of crude, it may be possible to reduce total transportation costs by utilizing an East Coast refinery location and OCS oil. Whether transportation costs are the factor which is most heavily weighed, and whether OCS could provide a significant share of crude input will, of course, depend on the particular company and site chosen.

1/ 1985 Reference Case, \$13

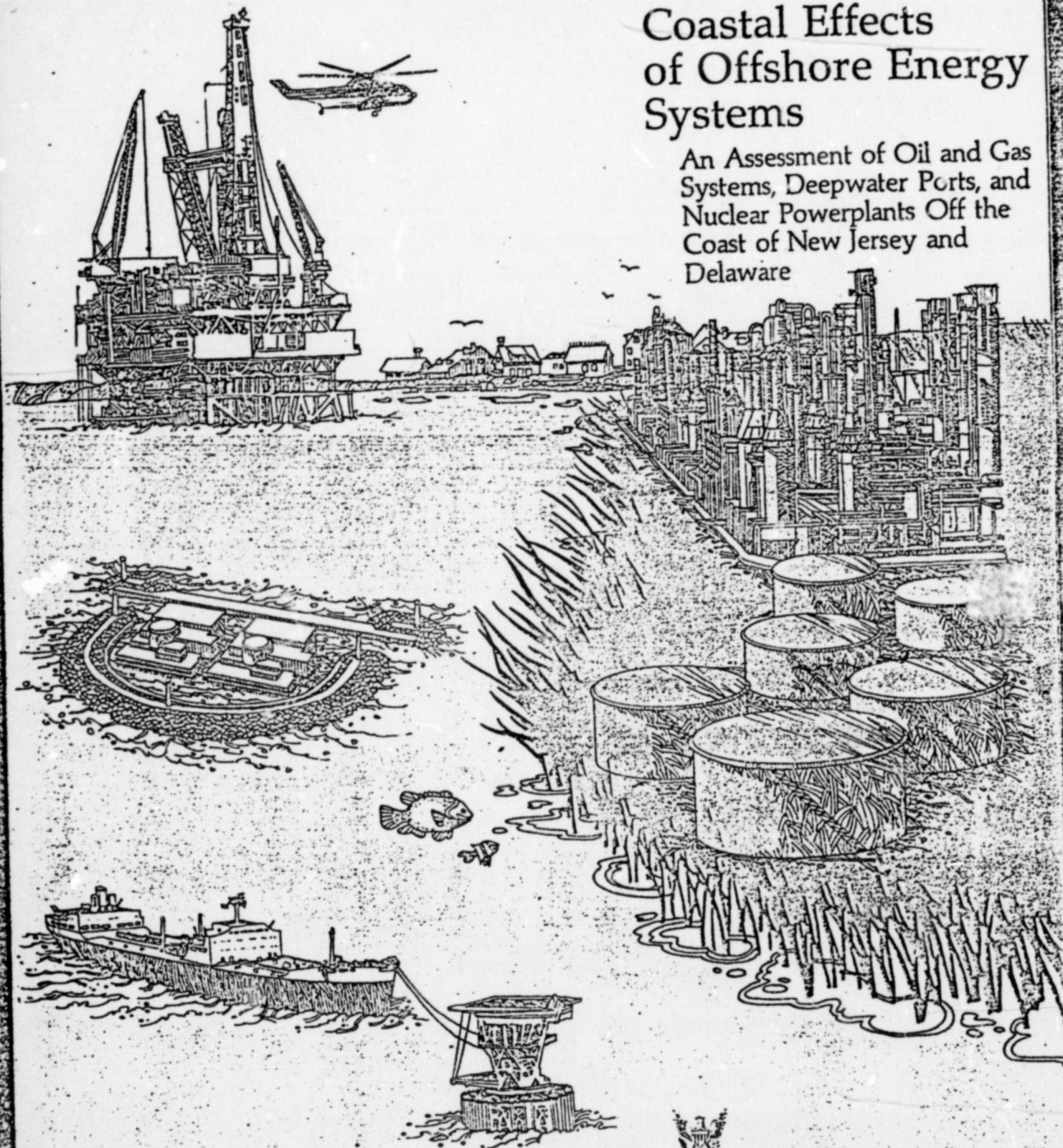
2/ A 53,000 BPD refinery is the only "large" refinery elsewhere in PAD 1 assuming that the Getty Delaware refinery should be grouped with New Jersey refineries.

3606

Volume II: Working Papers

Coastal Effects of Offshore Energy Systems

An Assessment of Oil and Gas
Systems, Deepwater Ports, and
Nuclear Powerplants Off the
Coast of New Jersey and
Delaware



United States Congress
Office of Technology Assessment
November 1976

3607

Working Paper #7

Environmental Studies for
OCS Oil and Gas Development

Prepared for OTA
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Andre LaBonte and OTA Oceans Project Staff

September 1976

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TABLE OF CONTENTS

	<u>Page</u>
I. FOREWORD	I-1
II. INTRODUCTION	II-1
III. PLANNING FOR ENVIRONMENTAL STUDIES	III-1
A. Procedures	III-1
B. Content of the Studies	III-2
1. Biological Subprogram	III-2
2. Physical Oceanographic/Meteorology Subprogram . .	III-4
3. Geologic and Bathymetric Subprogram	III-4
4. Chemical Subprogram	III-5
C. Study Relationship to OCS Leasing	III-5
D. Study Design	III-12
E. Description of Environmental Study Elements Prior to Leasing	III-13
IV. STATUS OF SELECTED ENVIRONMENTAL STUDIES	IV-1
A. Gulf of Alaska Study	IV-1
B. South Texas Study	IV-2
C. Mid Atlantic Study	IV-3
D. North Atlantic Study	IV-4
E. Comparison of Studies	IV-5
V. IMPROVEMENTS IN THE ENVIRONMENTAL STUDIES PROGRAM	V-1
A. General	V-1
1. Planning and Priorities	V-1
2. Identification of Information Needs	V-1

TABLE OF CONTENTS

3609

(Cont'd.)

	<u>Page</u>
3. Industry Methods and Needs	V-2
4. Existing Data	V-2
5. Programs Reviews	V-3
B. Congressional Needs	V-4

FOREWORD

This working paper presents a general analysis of the status of the Environmental Study Program for OCS development, currently underway at the Bureau of Land Management. There are areas in this program that are quite good and others that are questionable. In addition, some projects are so poorly described that it is difficult to tell whether or not they are satisfactory. The history, the basic concepts, and the validity of methods needs to be examined and this evaluation is a beginning look at the total program and major components.

Large sums of money are presently allocated for baseline and monitoring studies. The FY-76 budget is estimated at \$41.7 million and the FY-77 budget request is \$46.6 million. "Special Studies" take up 14% of the FY-76 budget (\$6.0 million) and an estimated 17% (7.9 million) of the FY-77 budget.^{1/}

It appears that most of the budget is directed toward long range general studies or broad baseline studies. It also seems that most studies are planned on the basis of very general goals.

This paper will first examine the general goals and then some of the specific study plans and activities. In this way some problems can be illustrated and improvements suggested.

II.

INTRODUCTION

The OCS Environmental Study Program is usually described by BLM in three parts: Baseline Studies, Monitoring, and "Special Studies."^{2/}

Baseline studies are intended to (a) provide an information base to assist management, (b) establish a predevelopment reference point (benchmark) and (c) help plan for monitoring and special studies. The purposes of baseline studies are to characterize the environment by compiling and analyzing all existing pertinent data and developing original research projects to fill gaps in existing data.

Monitoring is the systematic collection of data from regions where baselines are established to detect any environmental changes after development begins.

Special studies are conducted during baseline and monitoring studies and are meant to contribute to the understanding of important cause and effect relationships between oil and gas development and marine environmental changes. The objectives of special studies are:

1. to provide information about the OCS environment that will allow the Department of the Interior to make management decisions;
2. to fill the information needs of management, regulatory, and advisory agencies for a broad range of OCS activities, including the preparation and review of environmental impact statements.

Baseline Studies:

The specific objectives of baseline studies emphasize the management, predictive, and evaluative requirements of a good program.

1. To provide information suitable for making predictions of the effects of OCS development on components of the ecosystems.
2. To provide a description of the existing physical, chemical, geological, and biological elements of the systems and their interactions, against which changes or impacts can be measured.
3. To identify the critical parameters which should be included in the monitoring program.
4. To identify areas of need for special studies to meet the previous objectives and to conduct these special studies.

Two important factors in these studies are timing and design. The studies are to provide pre-development information for use in prediction and post facto evaluation of the hazards and environmental effects of OCS development. This requires a statistical design to define the limits of variation and to detect changes at the 90-95% confidence level.^{3/} The studies should be designed to provide statistical discrimination and should reach the discriminatory stage before decisions are made.

The present program can be expected to: (a) improve the hazard assessment, (b) set up "baseline" levels for key trace metals and hydrocarbone, (c) improve our understanding of qualitative biotic relationships, (d) improve prediction of target (select) pollutants and activities and (e) begin modeling of shelf circulation.

The 12-18 month Baseline Studies conducted in most OCS regions will not, however, be sufficient to fulfill the overall objectives. That will require a longer study period and/or more rigorous statistics.

The complete environmental studies program should have been developed much earlier in the OCS planning process. The plan should have been included in a leasing, exploratory, and development management plan. As of September 1976, a complete, cohesive plan still has not been prepared.

Some key questions which need to be addressed in all environmental study programs are:

- (a) Is the information available already? Are the existing data sufficient for decision making?
- (b) Are the study elements achievable given time and resource constraints? Are they sufficiently critical to warrant increasing resources or relaxing time constraints?
- (c) Are the study elements scientifically sound, i.e. quantifiable and statistically valid?
- (d) What study results are important for management decisions; when are they needed; and how are they used?

Our investigations have indicated that most of these questions have not been addressed in many of the studies now underway.

III.

- PLANNING FOR ENVIRONMENTAL STUDIES -

A. Procedures

According to statements from the "Draft of the Program Plan for the Bureau of Land Management OCS Environmental Studies" concerning coordination of study program planning activity, the procedure for initiating environmental studies is as follows:^{4/}

1. BLM discusses study plans with the OCS Environmental Studies Advisory Board.
2. BLM has a coordinating mechanism through Secretarial Order 2974 with the Fish and Wildlife Service, and the USGS for review of study plans. In practice, the other agencies receive the plans and have about 30 days to read and review them.
3. BLM solicits comments and recommendations for environmental study plans through the mechanism of open conferences. They may or may not use the recommendations in the study plan and the work may not necessarily follow the study plan.
4. BLM takes these recommendations, and in a series of meetings with Federal and State representatives, forms them into a multi-year plan for a given area. Thus far this has only happened in Alaska.

This multi-year plan is subsequently sent to the OCS Environmental Studies Advisory Board for review and comment; then instituted by either a) BLM funding of a study on studies by another Federal agency already involved in related research, or b) by issue of Requests For Proposals (RFP) with contracts established on a competitive bidding basis.

B. Content of the Studies

The studies are usually designed to cover four major subject areas: (1) biological, (2) physical, (3) geological and (4) chemical. These are described below.^{5/}

1. Biological Subprogram: The objectives of the biological program are to: (a, determine population density distributions, (b) determine areas of feeding, spawning and nurseries, and migration routes for key species, (c) identify the causes for major variations observed, (d) evaluate systematic effects of pollutants on selected species, (e) determine the means and natural variation for levels of pollutants in selected species or communities.

It is very difficult to analyze population density distributions or identify the causes of major variations. The OCS Environmental Studies Advisory Committee has repeatedly commented on this. (March 1976, October 1975, August 1976)

The use of terms such as "key" or "select" species implies that a "selection" process exists to determine which species are "key". There is no evidence that there is such a process.

The criteria used in deciding whether a species is "key" or not should be: (a) importance to man, (b) probability of adverse impact, (c) tractability for study, (d) importance to the ecosystem. Since so little is known about ecosystem dynamics, the other elements are generally used to select subjects for study.

The biological elements include both baseline and special studies. The special studies, as pointed out earlier, are supposed to be related to problems and information gaps found during baseline studies.

The biological baseline studies for the OCS program are supposed to include:

- a. Benthos -- Significant in this area are species composition and numbers and identification of indicator species sensitive to, or concentrators of, petro-chemical hydrocarbons. These are three requirements for this approach: (1) the original data must be extensive and must be subjected to rigorous statistical reduction; (2) the three parameters of species diversity, population levels, and changes in indicator species must be used; (3) the evaluations must be done by a trained ecologist. The most sensitive and most critical benthic areas are intertidal and shallow subtidal. These areas include estuaries, mud flats and salt marshes.
- b. Birds: The studies of avifauna should be concentrated on areas of breeding and feeding, areas overlapping migration routes, concentration of pollutants in food chains, and potential spill trajectories.
- c. Mammals -- These studies should be similar to birds.
- d. Fisheries: Intensive stock assessment and stock recruitment studies must be conducted.
- e. Plankton: Statements concerning species diversity, production, population levels and other parameters of community structure are non-scientific under the present program (or any reasonably expected changes) due to the extreme variation of all phytoplankton and holozo-

oplankton. To reduce statistically the data to meaningful numbers for decision-making would require taking literally thousands of samples taken at least quarterly. It may be better to perform very broad analyses of the relative numbers and biomass of classes or families. The reduction in detail would allow for more samples to be processed.

2. Physical Oceanographic/Meteorology Subprogram: The physical oceanographic and meteorological factors are necessary to evaluate operational hazards, spill trajectories, and to locate biological and chemical sampling stations. Design factors include current patterns, movement of dissolved and particulate pollutants, as well as probability and degree of severity for events.

The assessment factors should include temperature, salinity, current direction and velocity for surface and bottom, and the meteorologic limits and frequency of rare events. Much of the data are historical except in the area of Alaska. A two year program such as that described by the Environmental Studies Advisory Committee should be adequate if the existing data are surveyed completely.

Expected Study Design Elements:

- a. Description of large scale shelf circulation patterns.
- b. Develop time and space scales for current events.
- c. Full inventory of historical data supplemented with widespread synoptic studies.

3. Geological and Bathymetric Subprogram: Geologic studies cover potential hazards to development, potential hazards from development, and the transport of pollutants. Examples of specific items are bottom

bearing capacity, tectonic activity (especially seismic), slumping rate, sedimentation rates, and sediment transport.

Major elements to be studied should include:

- a. Crystal mobility and seismicity
- b. Mass movement of sediments
- c. Erosion and sedimentation
- d. Bathymetry (profiling)

4. Chemical Subprogram: The chemical composition of the offshore regions is less variable than other aspects with a longer time scale for change. This simplifies sampling and statistical analysis.

Chemical assessment should be directed toward determining the level of natural biogenic hydrocarbons versus man-introduced hydrocarbons, nutrient levels, trace element concentrations, and other man-introduced compounds.

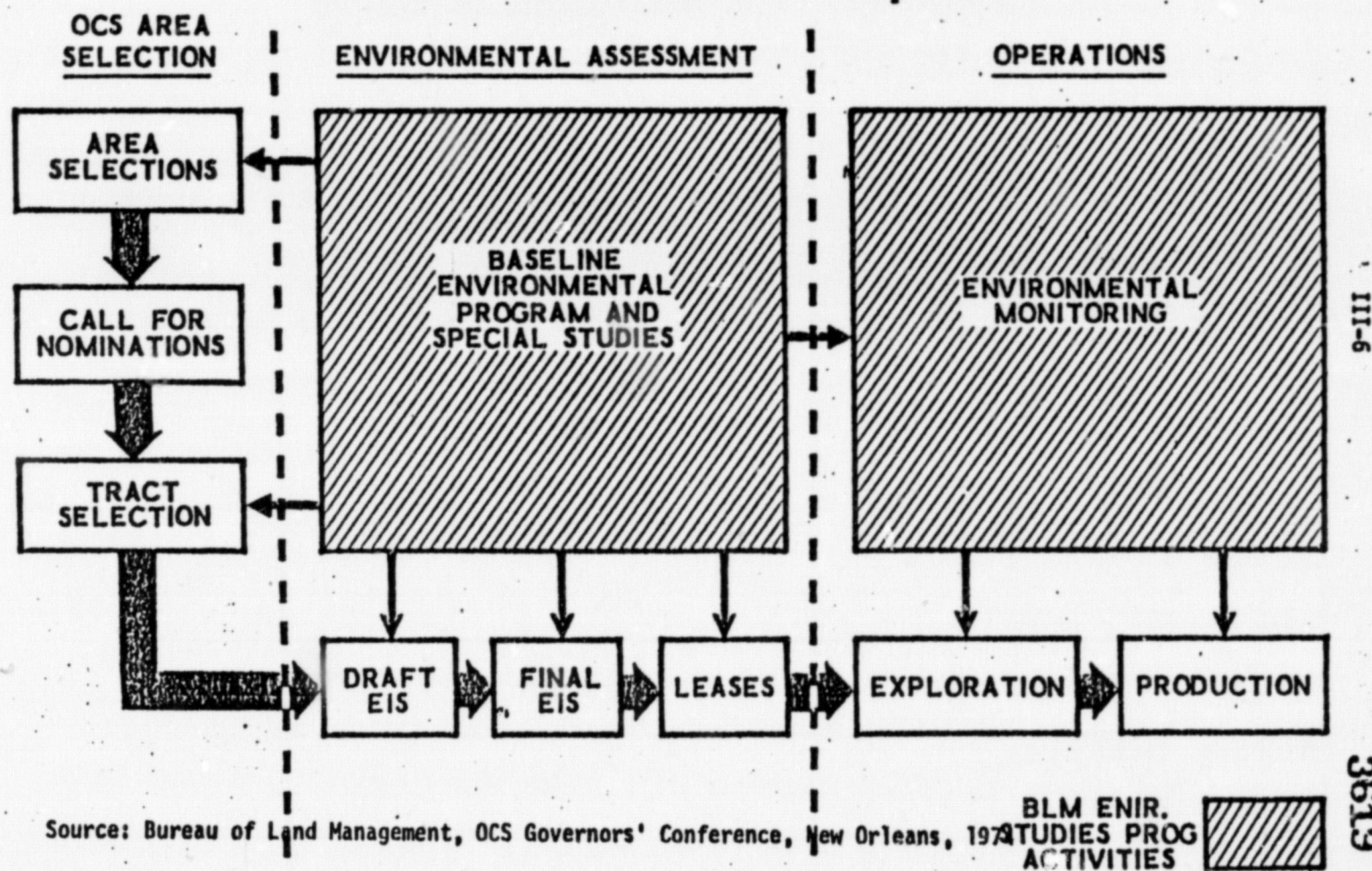
Design elements in the chemical subprogram include:

- a. Distribution of normal and introduced compounds.
- b. Statistical analysis of variation within time and space.
- c. Baseline levels and natural variation within selected species.
- d. Baseline levels and natural variation for nutrients in the water column

C. Study Relationship to OCS Leasing

The following diagrams (Figures 1 and 2) were distributed by BLM to the OCS Governors Conference (Nov. 1974) and, at a later date, to CEQ. It is of interest to note that Environmental Studies and Leasing/

Relationship of BLM Environmental Studies Program to OCS Minerals Development



Source: Bureau of Land Management, OCS Governors' Conference, New Orleans, 1979

11-6

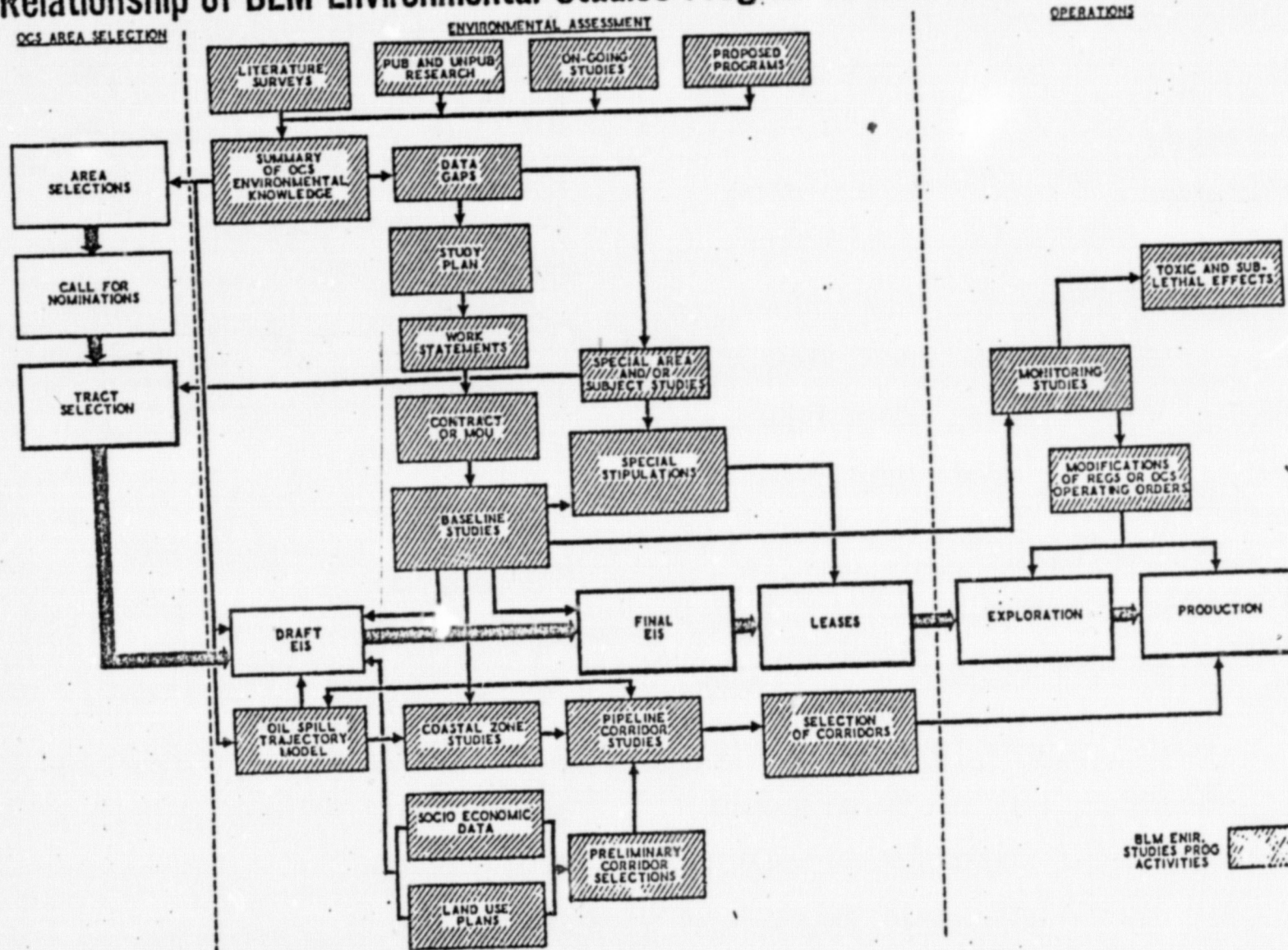
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Figure 2

Relationship of BLM Environmental Studies Program to OCS Minerals Development

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III-7



Source: Bureau of Land Management, OCS Governors' Conference, New Orleans, 1974

Development activities do not overlap. While the Environmental studies have some input to Development, they are not mainline items in decision making.

Specifically, (Figure 2) the only connection between the environmental assessment studies and the EIS process is in cases where there is an input of existing data (environmental knowledge) to the EIS. The only other line of flow is from baselines into monitoring and pipeline corridor selection. Even this is unclear since all pipeline corridor studies and selection actually come after exploration and before production.

The stated goals and study plan flow sheets are logical and represent a workable plan; however, the actual program does not usually follow these plans.

A graphic example of the problems in the study design and execution is seen in Figures 3-5. Figure 3 was released in July 1973, while Figure 5 was released in June 1975. The former shows an orderly schedule producing a sale every 2-3 months and allowing 10 months from nomination to final EIS.

This schedule did not include the time required to conduct studies. In the succeeding figures, in spite of an accelerated leasing program the whole program has slipped by several months. Even with these dates (showing a sale every 1-2 months from 1976-78) none of the 1975-76 baselines preceded the EIS. Also, as pointed out by a member of the OCS Environmental Studies Advisory Committee (Oct. 1975) the whole order of the events in the South Texas sale is reversed.

PROPOSED OCS PLANNING SCHEDULE

NOVEMBER 1974

SALE AREA		1974					1975					1976					1977					1978									
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
South Texas	37																														
Central Gulf	38																														
Southern California	35																														
State - Federal	1/																														
Cook Inlet																															
Gulf of Alaska	39																														
Mid-Atlantic	40																														
MAFLA, Gulf of 2/	41																														
Mexico (Deep)																															
North Atlantic	42																														
South Atlantic	43																														
Southern California	44																														
Bering Sea 2/	45																														
(St. George)																															
Gulf of Alaska	46																														
Including Kodiak																															
Gulf of Mexico (Deep)	47																														
So. California (Deep)	48																														
Mid-Atlantic	49																														
(Shallow & Deep)																															
Beaufort Sea	50																														
Outer Bristol Basin	51																														
North Atlantic	52																														
(Shallow & Deep)																															
So. California (Deep)	53																														
South Atlantic	54																														
(Blake Plateau)																															
Bering Sea	55																														
(Norton Basin)																															
Gulf of Alaska -	56																														
Aleutian Shelf																															
No. California, Wash., &	57																														
Oregon																															
Chukchi Sea	58																														
(Horne Basin)																															



Carl J. Bankland

Director,
Bureau of Land Management

Source: BLM, November

USI Baseline Studies Initiated

Baseline studies conducted

Source: BLM, November 1974

BSI Baseline Studies Initiated
C Call for Narrations
ND Narrations Due
T Announcement of Tracts
DES Draft Environmental Statement
PH Public Hearing
FES Final Environmental Statement
N Notice of Sale

Baseline studies scheduled are contingent upon scientific personnel and equipment being available to perform the studies.

The holding of sales in the Atlantic is dependent upon the outcome of pending litigation with the Atlantic States regarding jurisdiction over this area.

Sales are contingent upon technology being available for exploration and development. A decision whether to hold any of the lease sales listed will not be made until completion of all necessary studies of the environmental impact and the holding of public hearings as a result of the environmental, technical, and economic studies employed in the decision-making process. A decision, may, in fact, be made not to hold any sale on this schedule.

1/ State may conduct sale.

2/ These sales could be contingency sales for either Gulf of Alaska (39) or Mid-Atlantic (40).



Ernst J. Berklund

Director,
Bureau of Land Management

III-10

Figure 4
3623

PROPOSED OCS PLANNING SCHEDULE

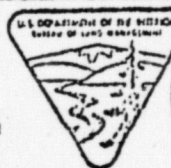
JUNE 1975
(REVISED NOVEMBER 1974 SCHEDULE)

SALE AREA		1974					1975					1976					1977					1978								
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N
SOUTH TEXAS	31	DES	PH	FES				Sale				Sale							HELD											
CENTRAL GULF	32	ND		T	DES	PH	N	FES		Sale				Sale					HELD											
CENTRAL GULF	32A	ND		T	DES	PH	N	FES				Sale																		
SOUTHERN CALIF.	35		T					DES		PH	BSI	FES	N	Sale																
COOK INLET	17	P	R	D	E	R	A	L	I						Sale				Sale											
GULF OF ALASKA	39	BSI			C	ND			T	T		DES	PH	FES	N	Sale														
GULF OF MEXICO (GENERAL)	41				C	ND			C	T	T		DES	PH	FES	N	Sale													
MID-ATLANTIC	40								C			BSI	ND	T	DLS	PH	FES	N	Sale											
NORTH ATLANTIC	42								C			ND	T	BSI	T	DLS	PH	FES	N	Sale										
GULF OF MEXICO (BRAINAGE)	44														T	DLS	PH	FES	N	Sale										
SOUTH ATLANTIC	43														T	DLS	PH	FES	N	Sale										
GULF OF ALASKA (INCLUDING KODIAK)	46											BSI	C		C	ND	T	DES	PH	FES	N	Sale								
BERING SEA (ST. GEORGE)	45				C	ND						BSI	T						DLS	PH	FES	N	Sale							
GULF OF MEXICO (DEEP)	47												C	ND		C	ND	T	DLS	PH	FES	N	Sale							
SO. CALIFORNIA	48															C	ND	T	DLS	PH	FES	N	Sale							
MID-ATLANTIC	49											BSI							C	ND	T	DLS	PH	FES	N	Sale				
DEAUFORT SEA	50																		C	ND	T	DLS	PH	FES	N	Sale				
DUTYEN BRISTOL BASIN	51											BSI																		
NORTH ATLANTIC	52																		C	ND	T	DLS	PH	FES	N	Sale				
CALIFORNIA GENERAL INCL. WASH. & OREGON	53																		BSI											
SOUTH ATLANTIC (BLAKE PLATEAU)	54																													
BERING SEA (MUNTON BASIN)	55																													
GULF OF ALASKA - ALUTIAN SHALF	56																													
CHUGCHIL SEA	57																													

Sources: BLM, June 1975

- BSI Baseline Studies Including
- C Call for Nominations
- DES Draft Environmental Statement
- PH Public Hearing
- FES Final Environmental Statement
- N Notice of Sale
- S Sale May Conduct Sale

Baseline studies scheduled are contingent upon scientific personnel and equipment being available to perform the studies. Sales are contingent upon technology being available for exploration and development. A decision whether to hold any of the lease sales listed will not be made until completion of all necessary studies of the environmental impact and the holding of public hearings as a result of the environmental, technical, and economic studies employed in the decision-making process, a decision, may, in fact, be made not to hold any sale on this schedule.



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3624

III-11

Figure 5

D. Study Design

The study designs for all the OCS programs share a common problem. There is a lack of internal coherence between the expressed goals of the programs and the projects funded. This is not to say that the projects are, or are not, scientifically valid. It does mean, however, that the answers derived may not be useful for detecting environmental changes, for management decisions, or for assessing environmental impacts.

OCS Science Advisory Committee members have gone on record since early 1975 (July and October 1975 reports) as questioning the applicability of the studies to the stated goals, particularly those of impact assessment and management planning.

In addition, many of the convenors and speakers at the "planning conferences" stated repeatedly (Georges Bank Conference, 1975^{8/}; Southern California Conference, 1975^{9/}; the South Atlantic Conference, 1975^{10/}; and the Gulf of Alaska Conference, 1975^{11/}) that it is not possible, with our present level of knowledge, to design studies of practical value within present time and funding constraints. In each conference the following points were made:

1. No program should begin until a complete survey of all existing data is done.
2. No data should be collected until the complete standardized data management system is instituted; beginning with a historical data bank and featuring correlative retrieval.
3. If studies are done which include short-lived, highly-variable components, such as plankton, there must be many more samples taken more

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3624

III-11

Figure 5

frequently; however, the results are probably not worth the effort and money.

4. Some provision should be made for the real use of study results in the EIS process, management decisions, and impact assessment.

E. Description of Environmental Study Elements Prior to Leasing:

Three phases of studies are planned for each OCS region: (1) Summary of Existing Data, (2) Baselines and (3) Special Studies, which can be described and evaluated as follows:

Phase I. Phase I efforts are supposed to center around summarizing all existing data on the Outer Continental Shelf. Out of 1,000 references collected for the Atlantic studies only 69 are specific for the OCS area, 83 are general oceanic, and the remaining over 800 references cover inshore, estuarine, terrestrial, or riverine systems. It appears that more attention to oceanic data is needed.^{12/}

The data survey and summary is usually planned to be complete before baseline studies begin, which is reasonable. However, in practice the existing data base has been only partially evaluated in any area prior to initiating both baseline and special studies. The data surveys reflect only references in the open literature and special inhouse reports from the institution(s) involved. Such data sources as the Navy, industry, inhouse reports for State agencies and unpublished university reports are usually not included. This may largely be a function of the time allotted to this phase.

Phase II (Baselines). Phase II is described as beginning after survey of existing data and continuing through oil/gas exploration early phases. The actual studies began in many areas prior to completing the

data surveys. The point of doing Baseline sampling after exploratory work begins is questionable. At present, Baseline and Data Surveys are largely overlapping; Baseline work will also overlap exploration and leasing with little or no provision to evaluate the interrelations between the two.

Phase III (Special). Special studies are supposed to complement and fill in data gaps found in the data survey and baseline studies. Accordingly, they are planned to begin part of the way through the baseline program.

The potential impacts of Outer Continental Shelf development are a focus of these environmental studies. However, there is considerable doubt whether or not the studies will, or can, detect those impacts. Figure 6 summarizes the major impacts that the studies have been planned to address.

Scientists at the planning conferences and individual State representatives have expressed this doubt. The doubts are related to whether the studies will provide information to detect more than the most obvious within the time frame now given. The following section summarizes pertinent aspects of studies to date to illustrate the difficulty encountered in matching studies to potential impacts.

Potential Effects of OCS Operations* on the Offshore Environment

POTENTIAL IMPACTS	SIGNIFICANCE
BIOLOGICAL	
1. DISRUPTION OR ALTERATION OF MARINE HABITATS	1. REDISTRIBUTION OF COMMERCIAL OR SPORT FISH POPULATION
2. OILING OR LETHAL EFFECTS OF SPILLS	2. DISTRIBUTION OF BIRDS AND MAMMALS
3. TOXIC AND SUBLETHAL EFFECTS ON MARINE ORGANISMS FROM CHRONIC POLLUTION	3. DISRUPTION OF FOOD WEB; CONCENTRATION OF TOXIC FRACTION THROUGH FOOD WEB
4. LOSS OF UNIQUE ENVIRONMENTS	4. LOSS OF RECREATIONAL RESOURCES
NON-BIOLOGICAL	
1. NAVIGATION HAZARDS	1. HAZARDS TO COMMERCIAL SHIPPING, SPORT FISHING CRAFT, FISHERMAN
2. MULTIPLE USE CONFLICTS	2. EXCLUSION OF AREAS FOR COMMERCIAL FISHING INTERESTS
3. DAMAGE TO ARCHAEOLOGICAL SITES	3. LOSS OF SITES WITH AESTHETIC HISTORICAL OR RECREATIONAL VALUE

* Drilling, Platform and Pipeline Construction, Oil and Gas Recovery

Source: Bureau of Land Management, OCS Governors' Conference, New Orleans, 1974

IV.

STATUS OF SELECTED ENVIRONMENTAL STUDIES

Early in 1974, BLM requested help from NOAA to develop a proposed program of studies. Two working papers were prepared by NOAA in October, 1974. One was the report of the NOAA Committee on Marine Environmental Assessment, which dealt with a variety of marine development impacts and studies to assess those impacts. The other paper was a draft proposal for an environmental study of the Baltimore Canyon Trough, specifically requested by BLM. The participants in this proposal were from USGS (Interior) Woods Hole Oceanographic Institute, Atlantic Oceanographic Marine Laboratory, National Marine Fisheries Service, and Environmental Research Laboratory, with input from NODB, EDS, and U.S. Fish and Wildlife Service (Interior). The study objectives in both documents are identical and they have been incorporated with very little modification in all subsequent planning documents, including the OCS Advisory Guidelines put out in mid-1976.^{13/}

By mid 1976, some aspect of environmental studies was underway in all of the major OCS frontier regions. Those with some significant history have been selected and summarized below. These are: the Gulf of Alaska study, the South Texas study, the Mid Atlantic Study and the North Atlantic Study.

A — Gulf of Alaska Study

The following work is presently in progress in the Gulf of Alaska under a contract with the National Oceanic and Atmospheric Administration scheduled for completion in late 1976:^{14/ 15/ 16/}

1. Assembly of baseline information concerning identification, distribution, and numbers of marine mammals, marine birds, pelagic fish, demersal fish, benthos, littoral biota and plankton. Information on primary production, the microbial community, pathology of certain organisms, and existing levels of hydrocarbons and trace metals will also be collected.
2. Evaluation of the effects of contamination on organisms considers acute and chronic toxicity, sublethal effects, uptake and depuration, bioaccumulation, transformation, and physiological effects.
3. Circulation studies of the Gulf of Alaska are to assemble data pertaining to standard hydrographic parameters in addition to information concerning river input, climatology, meteorology, and wave measurement.
4. Modeling through application of short period circulation models and long period models with support data from meteorological model development is intended to lead to a final distribution of variables model which should simulate the early trajectory of an oil spill.
5. Assembly of standard geological baseline data is complemented by inclusion of information pertaining to coastal morphology and sedimentation, beach profiles, dynamics of near-shore sea ice, geologic hazards, and seismic studies.

B -- South Texas Study

The following work is underway with contract to several organizations and agencies. 17/ 18/

1. National Ocean Survey (NOS) has completed tasks to assemble existing information on standard hydrographic data, currents, tidal and extreme storm data; to establish standard baseline data from existing information on zooplankton and ichthyoplankton information including seasonal abundance of commercial fish stock, eggs and larvae, evaluation of information on dominant species and standing stock of commercial and/or recreational finfish and crustacea on a seasonal basis.
2. The University of Texas is completing a contract for sampling to obtain baseline information covering analysis of plankton and benthic organisms for purposes of identification, establishment of abundance, diversity, trace metal and hydrocarbon concentration levels, and productivity.
3. The Geologic Survey is working on a contract for collection of sediment samples in order to analyze for benthic organisms, hydrocarbons, trace metals, carbonates, organic carbon, texture, clay mineralogy, and heavy minerals.
4. Texas A&M has been under a special study contract for reconnaissance of certain geologic features of the Western Gulf of Mexico.
5. The National Ocean Survey has been issued a Memo of Understanding for preparation of bathymetric maps.

C — Mid-Atlantic Study

The following study work is underway or specifically planned for the mid-Atlantic region. 19/ 20/ 21/ 22/

1. The Virginia Institute of Marine Science is under contract for seasonal collection and analysis of data on the benthic biota and chemical composition of the plankton, water column, and sediments.
2. The USGS has a Memorandum of Understanding requiring USGS to supply information concerned with 1) potential hazards due to shallow and intermediate depth features, sediment transport and seismicity, 2) description of sedimentary environments in Baltimore Canyon Trough region, 3) establishment of trace metal and hydrocarbon benchmark data in the area, and 4) description of possible bottom pollutant pathways and rates of transmission.
3. It is planned that NOAA would be funded to:
 - 1) organize oceanographic, meteorological, and climatology data;
 - 2) have NMFS do fish community structure and other analyses from existing data;
 - 3) develop physical oceanography data focused on model development.

D -- North Atlantic Study

No work has been started in the North Atlantic but the following tasks are specifically planned. 23/

1. Agreements between BLM and Environmental Data Service (EDS) of NOAA are anticipated for synthesis of existing climatological data.
2. NMFS will be tasked for analysis of existing data from previous collections of benthic fauna.
3. A contract is planned for a survey of published and unpublished data on mammals of the North Atlantic area and for nearshore marine environmental data.

4. A contract is planned, to obtain field data pertaining to physical oceanographic parameters encompassing surface current patterns, mass transport, propagating disturbances (e.g. ocean eddies, storm surge, river run-off).
5. An interagency agreement is planned with National Data Buoy Office (NDBO) of NOAA for acquisition and installation of one meteorological buoy on the Georges Bank for recording standard meteorological observations and measuring waves.
6. A Memorandum of Understanding is planned with USGS to address areas of sediment mobility over seabed, concentration, distribution, and flux of suspended particulate matter, characteristics and distribution of sediments, geological hazards such as faults and unstable sediment locations.
7. A contract is planned, to procure baseline and descriptive chemical and biological data encompassing study of high molecular weight hydrocarbon and specific trace metal concentrations in the marine biota and sediments, including measurement of existing levels in seawater and zooplankton.

E — Comparison of Studies

It is very difficult to make a realistic comparison of the studies in various stages of planning or actual accomplishment. The following comparison is based only on what appears to be planned and underway from both printed documents and discussions with certain individuals involved with the programs. Both of these sources are sometimes conflicting and, since the programs are evolving, changes are constant.

In any case, the following are specific points of comparison.

1. The Gulf of Alaska study, carried out by NOAA, appears to be the most thorough overall environmental study plan implemented to date. This study consists of a rather complete baseline assessment of significant parameters, e.g. mammals, birds, fishes, benthos, littoral biota, plankton, microbes, pathology, hydrocarbon and trace metal ambient levels, standard physical and geological oceanographic data. In addition to extensive baseline information, significant emphasis appears to be placed on study of potential effects and hazards of OCS oil exploration and production. The effects under consideration include study of acute, chronic and sublethal effects of hydrocarbons on organisms. The Gulf of Alaska study does not strictly dictate that studies be carried out at offshore sites only, but is continuous from offshore through nearshore and coastal areas of concern.
2. All other BLM-OCS environmental study programs appear to have more limited scope, with an overall pattern indicating greatest effort and emphasis being placed on the study and collection of data relating to levels of hydrocarbons and trace metals in the benthic and water column components.

This pattern presently appears to be true almost to the exclusion of studies concerned with potential effects, hazards, coastal impact, and circulation studies for prediction of spill movement. Figure 7 illustrates the differences in study contents for the four regions investigated.

Contents of Environmental Studies

Comparison in Four OCS Regions

The following is a comparison of which elements are included in actual or planned field data collections for each region.

X = Included

O = Not Included

	Gulf of Ala	South Texas	Mid- Atlantic	North Atlantic
1. Biological Data				
Mammals	X	O	O	O
Birds	X	O	O	O
Fish	X	O	O	O
Plankton	X	X	X	X
Benthos	X	X	X	X
Microbial	X	O	X	X
Littoral Biota	X	O	O	O
Pathology	X	O	O	O
Plankton Hydrocarbon and Trace Metals	X	X	X	X
Benthos Hydrocarbon and Trace Metals	X	X	X	X
Contaminant Effects	X	O	O	O
2. Physical Oceanographic Data				
Hydrographic	X	X	X	X
Circulation Modeling	X	O	O	O
Surface Waves	X	O	X	O
Meteorologic	X	O	O	X
Extreme Events	X	O	O	X
Mass Transport	X	O	O	X

3. Geologic Data	Gulf of Ala	South Texas	Mid- Atlantic	North Atlantic
Hydrocarbons & Trace Metals in Sediments	0	X	X	X
Sediment Distribution	X	X	X	X
Sediment Transport	X	0	0	X
Sediment Mapping	X	X	0	0
Fault Location	X	0	X	X
Seismic	X	0	X	X
Coastal Morphology	X	0	0	0
4. Chemical Data				
Trace Metals in Water	X	0	X	X
Nutrient Levels in Water	0	X	X	X
Hydrocarbon Levels in Water	X	X	X	X

3. All studies appear to have similar time constraint problems and a lack of time to adequately identify problems for consideration during leasing. The average time for study available to four (4) of the largest study programs in progress (Gulf of Alaska, South Texas, Mid and North Atlantic) is about 16 months for collection, organization, and development of understanding of significant factors. Accepting, as valid, the assumption that four seasons (12 months) of data collection is the absolute minimum necessary for establishment of basic seasonal patterns and influences in nature necessary before planning a study, the question arises as to whether there exists sufficient time for making use of this year's data, still in need of assimilation, organization and development, to the state of understanding that permits its use for influencing decisions concerning the subsequent OCS lease sales and their related activities. Figure 8 compares the planned and actual schedules for studies in the four regions.
4. For all regional studies, concern has been expressed not only for the limited amount of time granted to environmental studies preceding lease sales, but also for the actual technical/scientific value and potential usefulness of the type of data being collected within the limited time frame of these studies. 24/ 24/

Environmental Studies and Leasing Schedules

Comparison of Four OCS Regions

Region	Start Env. Studies		Lease Sale Date		Months from Start of Studies to Lease Sale	
	Planned	Actual	Planned	Actual	Planned	Actual
1. Gulf of Alaska	Jan'74	July'74	Dec'75	Feb'76	24	20
2. South Texas	Nov'73	Jan'74	Feb'75	Feb'75	15	13
3. Mid-Atlantic	Jun'75	Nov'75	Aug'76	Aug'76	14	9
4. North Atlantic	Sept'75	Feb'76	Jan'77	--	15	

V.

IMPROVEMENTS IN THE ENVIRONMENTAL STUDIES PROGRAM

A. General

OTA's analysis of the OCS environmental study program indicates the existence of a number of deficiencies and inconsistencies which, in turn, indicate problems of effectiveness and efficiency. Several suggestions for improvement have been made recently. These are discussed below:

I. Planning and Priorities:

A resolution introduced at the February 1976 OCS Research Advisory Committee meeting suggests that BLM, in cooperation with NOAA and its various branches, Fish and Wildlife Service, Geological Survey, the affected States, and others, as necessary, develop the following:

a) identification of all decisions which must be made and of all data that must be available to make those decisions.

b) identification of specific data needs, including insofar as possible, acceptable ranges of variance for satisfying users' needs.

c) a prioritization of acquisition of data responsive to the timing of decision-making relative to OCS exploration and development for each region.^{26/}

2. Identification of Information Needs:

Certain coastal State representatives, scientific research program administrators, and oil industry representatives, seem to believe that certain types of environmental studies could be performed which will result in data of greater value to existing needs. It would appear that

reorganization of the existing environmental study programs to allow more effective response to environmental information needs could represent a constructive correction.

3. Industry methods and needs:

The oil companies are sometimes not recognized as a potential source of environmental study recommendations, even though they have accumulated significant time, data, and experience working in the offshore environment.^{27/} It appears that some industry groups have made an accurate inhouse assessment of the present environmental study program which indicates that most of the data being collected is of no immediate use. They also fear that the link between the environmental program and OCS development may lead to future data inadequacies with accompanying litigation, delays, and inefficiencies. Specific types of information relating to OCS environmental conditions that can be relatively valuable to industry have yet to be identified. Identification of this information and development of methods for effectively and efficiently obtaining such data could be constructive.

4. Existing data:

There are many who suggest vast quantities of data relating to OCS environmental considerations presently exist, but must be identified, organized, and interpreted. It may be valuable to establish a mechanism for more thoroughly defining and organizing existing data. A hazardous sediment slump region on the South Texas OCS lease area was discussed at a February 1976 OCS Research Advisory Committee meeting. This was

supposed to represent a prime example for usefulness of data collected by environmental study programs.^{28/}

The oil industry has recently become well aware of the potential hazards posed by massive movements of bottom sediments following the loss, by Shell Oil, of a platform in S. Pass block 60 during hurricane Camille (1969). They have been and are continuing to carry out research on this subject.

All members were in agreement that preliminary geophysical reconnaissance data, as collected by the USGS for Texas environmental study program, was valuable for initial identification of potential slump hazards but is too sparse to be of any further value, thus requiring more intensive site specific surveys by the oil industry itself.

The geophysical data identifying this slump region and appearing as a part of the South Texas environmental study program were not collected during field collection activity of the study program, but were in fact existing data previously recorded by independent contractors under contract to the Conservation Division of the USGS, and subsequently purchased by the Geologic Division of the USGS for incorporation in the OCS environmental study data. Such events illustrate the issue of usefulness of environmental field studies vs. better analysis of existing data.

5. Program Reviews:

Finally, some reviews and internal critique of the entire program are now underway. There are two evaluative studies on the subject.

one by BLM explaining the rationale of the program, completed in the summer of 1976, and the other contracted with the National Academy of Sciences in August, 1976, for completion in the Spring of 1978. The latter study will treat the scientific validity and adequacy of the program design.

B. Congressional Needs

It appears that the major portion of both baseline and monitoring, and special studies efforts is presently directed toward long-range, broad based oceanographic research. A smaller portion is directly related to site specific data which may affect such OCS decision as tract selection or lease sales. For example, the Alaskan environmental studies program is about 50% of the total funding (over \$21 million). Specific baseline information for the Gulf of Alaska where lease sales are planned is \$2.6 million, and studies of geologic, seismic and ice hazards in the Gulf of Alaska is \$0.7 million (FY 76). Much of the Alaska budget appears to be for either general, very broad baseline information in areas where lease tracts are not yet defined, or for studies on ocean transport and oil spill effects questions. Management and logistics are also major portions in Alaska. In other regions, such as Mid-Atlantic, South Texas and Southern California, site specific or management decision related data is being collected but the efforts on specific information is much less than general research efforts here as well.

The total environmental studies program is now being managed and directed by a very small staff at BLM. The funding for Alaska studies is transferred to NOAA which manages and directs that effort. The FY 77

budget including many new programs and new regions appears to be more than the present staff could be expected to manage.

There is a great need to plan and evaluate these studies. The broad-based research needs to be separated from the short-range, site specific investigations. A long range look at methods for monitoring is needed because no monitoring of developed areas appears to be included in these present studies and, depending on method, these could be the major efforts. A total long-range plan is most urgently needed so all the parts can be evaluated.

A five-year plan for the environmental studies program would be of substantial use to Congress. Presently available BLM documents on the program do not provide a clear picture of short-range and long-term objectives of the program. Thus, it is difficult to determine what percentage of the effort contributes directly to OCS-related management decisions, and what portion contributes to broad-based ocean research.

A five-year program plan should include a description of the studies planned or projected for the five-year period, including these specific elements of the environmental studies program:

1. Surveys of existing literature
2. Baseline or benchmark studies
3. Monitoring studies
4. Special studies

For each of these components, the plan could detail level of funding required or projected for each year; number and qualifications of staff required for each component, and involvement by other government agencies at the Federal or State level in each study component, including approximate level of effort by each of these agencies.

The plan could also list the specific management decisions at Federal and State levels for which data will be provided for each study component. In other words, for each decision point, the plan could specify the types of data provided by the studies and how it will be used in the decision-making process. The method by which this data will be prepared and transmitted or made available for such use in management also could be included.

Finally, the plan could identify and provide a detailed justification for any element of the study which is not directly needed for management purposes, and indicate what proportion of the total program resources is required for these studies.

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2. Ad Hoc Committee for Design of Baseline Studies Outer Continental Shelf Environmental Studies Advisory Committee, Guidelines for the Design & Conduct of OCS Oil & Gas Development Environmental Baseline Studies, February, 1976.
3. Ibid.
4. Draft Report, Program Plan for the Bureau of Land Management OCS Environmental Studies, 1975.
5. Op. Cit., Ad Hoc Committee for Design of Baseline Studies Outer Continental Shelf Environmental Studies Advisory Committee.
6. Research Management Advisory Board Meeting of the Outer Continental Shelf (OCS), Department of the Interior, July 24-25, 1975.
7. Research Management Advisory Board, Meeting of the Outer Continental Shelf (OCS), Department of the Interior, October 23-24, 1975.
8. New England Natural Resources Center, Georges Bank Conference, Marine Environmental Assessment Needs on the Georges Bank related to Petroleum Exploration and Development, Waltham, Massachusetts, May 20, 21, 22, 1975.
9. Lavenberg, Robert J. and Sylvia A. Earle, Ed., Proceedings of the Recommendation for Baseline Research in Southern California Relative to Offshore Resource Development, Los Angeles, California, 1975.
10. Research Triangle Institute, Conclusions & Recommendations Conference Workshop, Bureau of Land Management's Environmental Studies Program for the South Atlantic Outer Continental Shelf, October 24, 1975.
11. Rosenberg, Donald H., Ed., Proceedings of the Conference/Workshop to Review the Draft Study Plan for Environmental Assessment of the Gulf of Alaska, Southeastern Bering & Beaufort Seas, April, 1975.

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13. Op. Cit., Ad Hoc Committee for Design of Baseline Studies Outer Continental Shelf Environmental Studies Advisory Committee.
14. Alaska Sea Grant Program, Draft Study Plan, Social and Economic Impact Assessment of Alaskan Outer Continental Shelf Petroleum Development, October 15, 1975.
15. U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Project Proposal, Environmental Assessment of the Northeastern Gulf of Alaska, First Year Program, May 1974.
16. Environmental Research Laboratories, Environmental Assessment of the Northeast Gulf of Alaska, 1975.
17. Outer Continental Shelf Research Management Advisory Board, Annual Report, 1974.
18. Outer Continental Shelf Research Management Advisory Board, Annual Report, 1975.
19. University of Maryland, Center of Adult Education, Marine Environmental Implications of Offshore Oil and Gas Development in the Baltimore Canyon Region of the Mid-Atlantic Coast, Proceedings of Estuarine Research Federation Outer Continental Shelf Conference and Workshop, College Park, Maryland, December 2-4, 1974.
20. U. S. Department of Interior, Bureau of Land Management, Request for Proposal No. 75-7, Mid Atlantic Baseline Studies and Analysis, March 17, 1975.
21. Virginia Institute of Marine Science, Environmental Data Acquisition and Analysis--Mid-Atlantic OCS, October 13, 1975.
22. "Memorandum of Understanding Between U. S. Geological Survey and Bureau of Land Management, 08550-MU5-33."
23. U. S. Department of Interior, Bureau of Land Management, Marine Environmental Study Plan for the North Atlantic/Georges Bank Outer Continental Shelf, December 1, 1975.

24. Straughan, Dale, Environmental Studies Relating to Offshore Petroleum Operations, August 1975.
25. Gray, John, "Are Marine Base-line Surveys Worthwhile," New Scientist, Vol. 70, no. 998, April 29, 1976.
26. Environmental Studies Advisory Committee, Meeting of the Outer Continental Shelf (OCS), Department of Interior, February 18-19, 1976.
27. American Petroleum Institute, Environmental Research, Annual Report, January 1975.
28. Op. Cit., Environmental Studies Advisory Committee, Meeting of the Outer Continental Shelf (OCS).

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UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

-----X
SECRETARY OF THE INTERIOR, et al. :

Appellants :

-against- :

COUNTY OF SUFFOLK, et al. :

Appellees :

-----X
THOMAS S. KLEPPE, Secretary of the
Interior :

Appellant :

-against- :

THE NATURAL RESOURCES DEFENSE COUNCIL,
INC. :

Appellee :

-----X
CITY OF WASHINGTON)
DISTRICT OF COLUMBIA)

Affidavit of Cecil D. Andrus

CECIL D. ANDRUS, being duly sworn, deposes and states the following:

1. I am the Secretary of the Interior, and have been since
January 21, 1977.

2. On March 1, 1977, I asked the Department of Justice to appeal
the decision of U.S. District Court Judge Jack B. Weinstein, dated February 17,
1977, which voided the sale of oil and gas leases by this Department in the
Mid-Atlantic area of the outer Continental Shelf.

3. I believe that it is in the public interest that Judge Weinstein's
decision be given expeditious consideration on appeal for the following reasons:

- A. This nation is presently experiencing a period where available
supplies of energy fuels are insufficient to meet existing needs;
- B. Continued or increased reliance on foreign imports of oil
and gas in lieu of increased domestic production is not

EXHIBIT A.

in the national interest;

C. The monies (bonuses and rentals) received by the Department of the Interior for the sale of the Mid-Atlantic OCS oil and gas leases have already been deposited in the U.S. Treasury, for disposition according to law;

D. If OCS sale No. 40 is finally determined to be null and void, the monetary loss to the government in having to reoffer that Mid-Atlantic area for leasing later in time would be approximately \$100 million a year, which represents the annual interest owing on a loan of \$1.1 billion.

E. This Department has an urgent need to know whether or not its preparation of environmental impact statements on outer Continental Shelf oil and gas lease sale proposals fulfills the requirements of the National Environmental Policy Act. The outer Continental Shelf is considered to be a source of sufficient oil and gas resources to have a significant impact on our domestic energy needs.

F. There are presently pending before the Department exploration plans submitted by OCS sale No. 40 lessees for our consideration.

G. The Department of the Interior, as lessor of the oil and gas leases involved in this matter on behalf of the United States, has an obligation to seek as quick a resolution of the case as is possible to protect the Federal, as well as private, interests in the matter.

4. For all of the foregoing reasons, I urge that the appeal in this

case be considered on an expedited basis.

Subscribed and sworn to before me
this 11th day of March, 1977.

Notary Public:

Richard R. Lee

My Commission expires:

April 14, 1977

Cecil D. Andrus
CECIL D. ANDRUS

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DEPARTMENT of the INTERIOR

news release

OFFICE OF THE SECRETARY

For Release March 1, 1977ANDRUS ASKS APPEAL OF DECISION VOIDING OCS SALE

Secretary of the Interior Cecil D. Andrus said today that he was asking the Department of Justice to appeal the decision of U.S. District Court Judge Jack B. Weinstein February 17 which voided the sale of oil and gas leases in the Mid-Atlantic area of the Outer Continental Shelf (OCS).

In the sale on August 17, 1976, in the Baltimore Canyon area off the coasts of New Jersey, Delaware, and Maryland, the Department accepted high bonus bids totaling more than \$1.1 billion for 93 tracts covering 529,466 acres.

"After carefully reviewing Judge Weinstein's decision and the environmental studies which were completed before the sale, I have decided that an appeal of Judge Weinstein's decision is in the public interest," Secretary Andrus said.

"I have, however, directed the Department's Geological Survey to withhold action on any applications for exploration permits in the leased area until the outcome of this appeal is determined. It is my intention not only in connection with this sale but in connection with all OCS sales which may be held in the future to assure that information on exploration and development plans be submitted to the affected States for review and comment before they are approved. We want to guarantee the Governors of the affected States a maximum opportunity to review such plans so that they can plan wisely for on-shore impacts."

"After exploration, but prior to development, there will be an opportunity to look at and develop an environmentally sound procedure for the removal of the resource," Andrus stated.

"If our appeal is successful, I intend to require the preparation of an environmental impact statement prior to approving development plans for these leases."

"All points raised in the suit will be considered prior to approval of the development plan and in consultation and review with the affected states and local governments," Andrus said.

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